The Second African International Conference on Industrial Engineering and Operations Management

December 7-10, 2020
Harare, Zimbabwe

Host:
University of Zimbabwe

Industrial Engineering and Operations Management Society International
21415 Civic Center Dr., Suite 217, Southfield, Michigan 48076, USA
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“Achieving and Sustaining Operational Excellence”

Industrial Engineering and Operations Management Society International

21415 Civic Center Dr., Suite 217, Southfield, Michigan 48076, USA, p. 248-450-5660, e. info@ieomsociety.org
Welcome to the 2nd African IEOM Society Conference
Harare, Zimbabwe

To All Conference Attendees:

We want to welcome you to the 2nd African IEOM Society Conference in Harare, Zimbabwe hosted by the University of Zimbabwe, December 7-10, 2020. This unique international conference provides a forum for academics, researchers, and practitioners from many industries to exchange ideas and share recent developments in the fields of industrial engineering and operations management. This diverse international event provides an opportunity to collaborate and advance the theory and practice of significant trends in industrial engineering and operations management. The theme of the conference is "Operational Excellence in the Era of Industry 4.0." There were more than 400 papers/abstracts submitted from 43 countries, and after a thorough peer review process, approximately 300 have been accepted. The program includes many cutting-edge topics of industrial engineering and operations management.

Our keynote speakers:

- Prof. Kuzvinetsa Peter Dzvimbo, Chief Executive Officer, Zimbabwe Council for Higher Education (ZIMCHE), Harare, Zimbabwe
- Dr. Esther T. Akinlabi, Director, Pan African University for Life and Earth Sciences Institute (PAULESI), Ibadan, Nigeria - African Union Commission
- Henk Viljoen, Siemens – Xcelerator, Portfolio Development Manager Siemens Digital Industries Software, Pretoria, Gauteng, South Africa
- Dr. Douglas Mboweni, Ph.D., Group Chief Executive Officer, Econet Wireless Zimbabwe Limited, Harare, Zimbabwe
- Dr. Robert Van Til, Chair and Pawley Professor of Lean Studies, Department of Industrial and Systems Engineering, Oakland University, Michigan, USA
- Professor Mqhele Dlodlo, Vice-Chancellor, National University of Science and Technology (NUST), Ascot, Bulawayo, Zimbabwe
- Corrado La Forgia, VP Operations Manager and Managing Director, BOSCH VHIT – CR, Offanengo, Lombardy, Italy
- Dr. Marco Lübbecke, Professor of Operations Research, RWTH Aachen University, Aachen, Germany
- Prof. Quinton Kanikukamwe, Vice Chancellor, Harare Institute of Technology, Harare, Zimbabwe
- Professor Paul Mapfumo, Vice Chancellor, University of Zimbabwe, Harare, Zimbabwe
- Professor Maneesh Kumar, Professor in Service Operations, Cardiff Business School, Cardiff University, UK
- Prof. Nidhal Rezg, Professor & Director of LGIPM, Director General of UPS DITEX, University of Lorraine Metz, France
- Prof. Ephraim Tobela Gwebu, Vice Chancellor, Solusi University, Bulawayo, Zimbabwe
- Professor David Simbi, Vice-Chancellor, Chinhoyi University of Technology, Chinhoyi, Zimbabwe
- Professor Thong Ngee GOH, Emeritus Prof., Dept. of ISE and Former Head of Industrial and Systems Engineering & Dean of Engineering, National University of Singapore

The 19th IEOM Society Global Engineering Education session will feature distinguished speakers who will discuss the workforce readiness and engineering education challenges and opportunities. Industry Solutions and Industry 4.0 will showcase major topics including IoT, AI, data analytics, iCloud, cybersecurity, automation, digital manufacturing, and MSV. Industry Solutions will showcase the best industry practices as well as shared experiences. Women in Industry and Academia panel session will be included.

The IEOM Society would like to express our sincere appreciation to the University of Zimbabwe for hosting this event. We would like to extend a special thanks to our sponsors, university partners, organization partners, authors, reviewers, keynote speakers, panelists, track chairs, advisors, the local committee, and the many volunteers. They have given so much of their time and talent to make this unique international conference an overwhelmingly successful event.

Our best wishes to all conference participants for a successful and enjoyable event.

Enjoy the conference!
Conference Program

December 7, 2020 (Monday)
TECHNICAL SESSIONS
8:00 – 9:45 am Technical Track Parallel Sessions - Rooms 1, 2, 3 and 4
9:45 – 10:00 am Break
10:00 – 11:45 am Technical Track Parallel Sessions - Rooms 1, 2, 3 and 4
11:45 am - 12:00 pm Break
12:00 – 1:45 pm Technical Track Parallel Sessions - Rooms 1, 2, 3 and 4
1:45 pm - 2:00 pm Break
2:00 – 3:45 pm Technical Track Parallel Sessions - Rooms 1, 2, 3 and 4
3:45 pm - 4:00 pm Break
4:00 – 5:45 pm Technical Track Parallel Sessions - Rooms 1, 2, 3 and 4
5:45 pm - 6:00 pm Break
6:00 – 7:45 pm Technical Track Parallel Sessions - Rooms 1, 2, 3 and 4

December 8, 2020 (Tuesday)
MORNING TECHNICAL SESSIONS (Starting 8 am Zimbabwe Time / 1 pm Jakarta Time)
8:00 – 9:45 am Technical Track Parallel Sessions - Rooms 1, 2, 3 and 4
9:45 – 10:00 am Break
10:00 - 11:40 am Global Business Management Education - Room 1
10:00 - 11:45 am Technical Track Parallel Sessions - Rooms 2, 3 and 4
11:45 am - 12:00 pm Break
12:00 – 1:40 pm Global Engineering Education - Room 1 and
12:00 – 1:30 pm Technical Presentations - Rooms 2, 3 and 4

KEYNOTE – Tuesday, December 8, 2:00 pm – 4:30 pm - Room 1
1:40 – 2:00 pm Conference Chair Remarks and Welcome Address:
2:00 – 2:30 pm Opening OPENING KEYNOTE - Prof. Kuzvinetsa Peter Dzvimbo, Chief Executive Officer, Zimbabwe Council for Higher Education (ZIMCHE), Harare, Zimbabwe
2:30 – 3:00 pm Keynote II: Dr. Esther T. Akinlabi, Director, Pan African University for Life and Earth Sciences Institute (PAULESI), Ibadan, Nigeria - African Union Commission
3:00 – 3:30 pm Opening Keynote III: Henk Viljoen, Siemens – Xcelerator, Portfolio Development Manager Siemens Digital Industries Software, Pretoria, Gauteng, South Africa
3:30 – 4:00 pm Opening Keynote IV: Dr. Douglas Mboweni, Group Chief Executive Officer, Econet Wireless Zimbabwe Limited, Harare, Zimbabwe
4:00 – 4:30 pm Opening Keynote V: Dr. Robert Van Tii, Chair and Pawley Professor of Lean Studies, Department of Industrial and Systems Engineering, Oakland University, Michigan, USA
4:30 – 4:45 pm Break
4:45 – 6:15 pm Industry Solutions / Industry 4.0 - Room 1
Technical Presentations - Rooms 2, 3 and 4
6:15 – 6:30 pm Break

EVENING TECHNICAL SESSIONS, December 8, 2020 (Starting 6 pm Zimbabwe Time / 12 pm Michigan Time)
6:30 - 8:00 pm Technical Track Parallel Sessions - Rooms 1, 2, 3 and 4
8:00 - 8:15 pm Break
8:15 - 10:00 pm Technical Track Parallel Sessions - Rooms 1, 2, 3 and 4

December 9, 2020 (Wednesday)
MORNING TECHNICAL SESSIONS (Starting 8 am Zimbabwe Time / 1 pm Jakarta Time)
8:00 – 9:45 am Technical Track Parallel Sessions - Rooms 2, 3 and 4
9:45 – 10:00 am Break
10:00 - 11:45 am Global Engineering Education - Room 1
11:45 am - 12:00 pm Break
12:00 – 1:40 pm Global Engineering Education - Room 1
12:00 – 1:30 pm Technical Presentations - Rooms 2, 3 and 4

KEYNOTE – Wednesday, December 9, 2020 - Room 1
1:40 – 2:00 pm Conference Chair Remarks and Welcome Address:
2:00 – 2:30 pm Wednesday Keynote I: Professor Mqhele Dlodlo, Vice-Chancellor, National University of Science and Technology (NUST), Ascot, Bulawayo, Zimbabwe
2:30 – 3:00 pm Wednesday Keynote II: Corrado La Forgia, VP Operations Manager and Managing Director, BOSCH VHIT – CR, Offanengo, Lombardy, Italy
3:00 – 3:30 pm Wednesday Keynote III: Dr. Marco Lübbecke, Professor of Operations Research, RWTH Aachen University, Aachen, North Rhine-Westphalia, Germany
3:30 – 4:00 pm Wednesday Keynote IV: Prof. Quinton Kanhukamwe, Vice Chancellor, Harare Institute of Technology, Harare, Zimbabwe
4:00 – 4:30 pm Wednesday Keynote V: Professor Paul Mapfumo, Vice Chancellor, University of Zimbabwe, Harare, Zimbabwe
4:30 – 4:45 pm - Break
4:45 – 6:15 pm Industry Solutions II - Room 1
Women in Industry and Academia Panel Session – Room 2
Technical Presentations - Rooms 3 and 4
6:15 – 6:30 pm - Break

EVENING TECHNICAL SESSIONS (Starting 6 pm Zimbabwe Time / 12 pm Michigan Time)
6:30 - 8:00 pm Technical Track Parallel Sessions - Rooms 2, 3 and 4
8:00 - 8:15 pm Break
8:15 - 10:00 pm Technical Track Parallel Sessions - Rooms 2, 3 and 4

December 10, 2020 (Thursday)
MORNING TECHNICAL SESSIONS (Starting 8 am Zimbabwe Time / 1 pm Jakarta Time)
8:00 – 9:45 am Technical Track Parallel Sessions - Rooms 1, 2, 3 and 4
9:45 – 10:00 am Break
10:00 - 11:45 am Technical Track Parallel Sessions - Rooms 1, 2, 3 and 4
11:45 am - 12:00 pm Break
12:00 – 1:40 pm Global Engineering Education - Room 1
12:00 – 1:30 pm Technical Track Parallel Sessions - Rooms 2 and 3
12:00 – 1:30 pm Industry Solutions III - Room 4

KEYNOTE, Thursday, December 10 - Room 1
1:40 – 2:00 pm Conference Co-Chair Remarks:
2:00 – 2:30 pm Thursday Keynote I: Professor Maneesh Kumar, Professor in Service Operations, Cardiff Business School, Cardiff University, United Kingdom
2:30 – 3:00 pm Thursday Keynote II: Prof. Nidhal Rezg, Ph.D., Professor and Director of LGIPM, Director General of UPS DITEX, University of Lorraine Metz, France
3:00 – 3:30 pm Thursday Keynote III: Prof. Ephraim Tobela Gwebu, Vice Chancellor, Solusi University, Bulawayo, Zimbabwe
3:30 – 4:00 pm Thursday Keynote IV: Professor David Simbi, Vice-Chancellor, Chinhoyi University of Technology, Chinhoyi, Zimbabwe
4:00 – 4:30 pm Thursday Keynote V: Professor Thong Ngee GOH, Emeritus Professor, Department of Industrial Systems Engineering and Management, Former Head of the Industrial and Systems Engineering Department and Former Dean of Engineering, National University of Singapore

4:30 - 6:30 pm, Thursday, December 10 - Awards Ceremony - Room 1
6:30 pm – 8:00 pm (Zimbabwe Time) / 11:30 am - 1:00 pm (USA Eastern Time)
Diversity and Inclusion Panel Session sponsored by Ford Motor Company - Room 1

6:30 pm – 8:00 pm Technical Presentations - Rooms 2, 3 and 4
Keynote Speakers

Opening Keynote - Tuesday, December 8, 2020, 2:00 – 4:30 pm

December 8, 2020, Tuesday
Conference Chair Remarks and Welcome Address: December 8, 2020, Tuesday, 1:45 - 2:00 pm - Zoom Meeting Room 1

Opening Keynote: Tuesday, December 8, 2020, 2:00 - 2:30 pm (Zimbabwe Time) / 8:00 am - 8:30 am (USA EST)

Prof. Kuzvinetsa Peter Dzvimbo
Chief Executive Officer
Zimbabwe Council for Higher Education (ZIMCHE)
Harare, Zimbabwe

Prof. Dzvimbo has been working in tertiary education and training; management training and consulting, open and distance learning; and the use of ICTs in higher education in Africa since 1979. He currently works as Chief Executive Officer of the Zimbabwe Council of Higher Education, previously he was a Deputy Vice-Chancellor (Academic and Research) of the Vaal University of Technology, South Africa. From March 2009 to July 2011, Prof. Dzvimbo was a Deputy Executive Dean in the College of Human Sciences, then an Executive Dean in the College of Education at the University of South Africa (UNISA). Professor Dzvimbo was a member of the UNESCO international jury on Electronic Learning for five years which met annually in Paris to assess global projects in eLearning.

Prior to his appointment to UNISA, he was a Professor of Education Management and Head of the Department of Education Management at the University of Johannesburg. He became Rector of the African Virtual University (AVU) in Nairobi, Kenya, for four years from the World Bank in Washington, DC where he was a Senior Education Specialist in tertiary education and training. As Rector of the AVU in Kenya, he worked with almost 60% of the major universities on the African continent in the field of ICTs in education. During that time, he gained valuable experience in working in education development, leadership and management in Francophone Africa (Burundi, DRC, Djibouti, Madagascar, Malawi, Mali, Mauritania, Niger, Rwanda, Senegal), Lusophone (Mozambique) and Anglophone Africa (Ghana, Kenya, Lesotho, Namibia, Nigeria, Somalia, Swaziland, Uganda, South Africa, Tanzania, Zambia, and Zimbabwe.). He was responsible for strategic direction and leadership of the AVU and its activities in Africa and its partners in Canada, the USA and Australia. While in the World Bank, he worked in the fields of strategic planning and management, sector studies, program evaluation and monitoring, ICTs in education, education policy and planning, tertiary education and training, capacity development at national level and teacher education in Ghana, Grenada, Jamaica, Mozambique, Namibia, Sierra Leone, St. Lucia, Tanzania, Trinidad and Tobago. He also provided sector support to a number of education projects globally.

He was the founding Vice-Chancellor of the Zimbabwe Open University. Prior to that appointment, he was a Pro-Vice Chancellor at the University of Zimbabwe and a Dean in the Faculty of Education at the same institution for five years. He held teaching positions at the University of Zimbabwe, the University of Wisconsin-Madison (USA); the University of the Witwatersrand (RSA); the Rand Afrikaans University (1995-1998) (RSA); and the School of Basic Studies at Ahmadu Bello University (Nigeria) from 1979-1981. He was a deputy principal of a secondary technical teachers college and trained primary school teachers through open and distance learning in Zimbabwe during the early 1980s. His first teaching career was as a secondary school teacher in Freetown, Sierra Leone in 1977.

Prof. Dzvimbo obtained his PhD from the University of Wisconsin-Madison (USA) in Educational Policy Studies; a M.Ed. in Administration and Planning from Ahmadu Bello University in Nigeria; a Post Graduate Diploma in Education from Fourah Bay College, the University of Sierra Leone; and a BA from the same university. He has worked in over 20 countries in Africa in teacher education; change management in education; the use of ICTs in higher education; and open, distance and electronic learning (ODEL) since 1990. His main areas of interest are basic and applied research in ODEL.

Keynote II: Tuesday, December 8, 2020, 2:30 - 3:00 pm (Zimbabwe Time) / 8:30 am - 9:00 am (USA EST)

Dr. Esther T. Akinlabi
Director
Pan African University for Life and Earth Sciences Institute (PAULESI)
Ibadan, Nigeria
African Union Commission

Professor Esther Titilayo Akinlabi is a Full Professor of Mechanical Engineering. She was recently appointed as the Director of the Pan African University for Life and Earth Sciences Institute (PAULESI), Ibadan, Nigeria. The Pan African University (PAU) is a continental initiative of the African Union Commission, Addis Ababa to revitalize Higher Education and Research in Africa. PAULESI represents the West African Hub of the Pan African University hosted by the University of Ibadan, Nigeria.

Prior to joining PAULESI, she had a decade of meritorious service at the Department of Mechanical Engineering Science, Faculty of Engineering and the Built Environment, University of Johannesburg (UJ), South Africa. During her period of service at UJ, she had the privilege to serve as the Head of Department of the Department of Mechanical Engineering Science and as the Vice Dean for Teaching and Learning for the Faculty. Her research interest is in the field of modern and advanced manufacturing processes – Friction stir welding and additive manufacturing. Her research in the field of laser based additive manufacturing include laser material processing and surface engineering. She also conducts research in the field of renewable energy, and biogas
production from waste. She is a rated National Research Foundation (NRF) researcher in South Africa and has demonstrated excellence in all fields of endeavors.

Prof Akinlabi has supervised to completion 22 PhD candidates and 28 Masters Students. Her leadership, mentorship and research experience is enviable as she guides her team of postgraduate students through the research journey. She is a recipient of several research grants and has received many awards of recognition to her credit. She is a registered member of the Engineering Council of South Africa (ECSA), Council for the Regulation of Engineering Profession in Nigeria (COREN), South African Institution of Mechanical Engineers (SAIMechE), the Nigerian Society of Engineers (NSE) and the American Society of Mechanical Engineers (ASME), USA. Prof Akinlabi has filed two patents, edited four books, published seven books and authored/co-authored over 500 peer reviewed publications.

Keynote III: Tuesday, December 8, 3:00 - 3:30 pm (Zimbabwe Time) / 9:00 am - 9:30 am (USA EST)

Henk Viljoen  
Head of Business Development for Africa & Middle East  
Siemens Digital Industries Software  
Pretoria, Gauteng, South Africa

Henk Viljoen is heading business development in Africa & Middle East for Siemens Digital Industries Software. He graduated with a B.Eng. Mechanical Degree at the University of Pretoria, South Africa in 1995 and over the past 25-years have supported numerous companies in the discrete and process industries to improve their business results. Business improvement was achieved using Siemens Digital Enterprise Suite, incorporating Product Lifecycle Management (PLM) & Manufacturing Operations Management (MOM) technologies, supporting the entire value chain from Product design, Production planning, Production engineering, Production execution and Services.

The following business goals were achieved:
- Faster new product development launch time.
- Lower material and operational cost.
- Optimize manufacturing performance and agility.
- Achieve quality assurance and ever-increasing regulatory compliance.
- Efficient & secure supplier collaboration.

Title of Talk: **Revolutionize plant production with digitalization**

- Understand the key elements and goals of the complete Digital Transformation of a plants production.
- RaisioAqua Industrial IoT Case Study - By feeding real time production data back into factory simulation and process scheduling software production is improved continuously.
- Implement digital transformation in plant production enabled by Siemens MindSphere IoT, Tecnomatix Plant Simulation and OPCENTER Advanced Planning & Scheduling (APS) software.

Keynote IV: Tuesday, December 8, 3:30 - 4:00 pm (Zimbabwe Time) / 9:30 am - 10:00 am (USA EST)

Douglas Mboweni, Ph.D.  
Group Chief Executive Officer  
Econet Wireless Zimbabwe Limited  
Harare, Zimbabwe

Douglas Mboweni is the CEO of Econet Wireless Zimbabwe Limited, the country’s leading provider of telecoms services and has over 20 years of senior management experience in the Information Technology and Telecommunications industry. Under his stewardship, Econet Wireless Zimbabwe used innovation in the face of difficult economic conditions to grow its subscriber base from 200,000 in 2002 to over eleven million today, a commanding market share of above 65%. Dr Mboweni was instrumental in the promotion of local mobile financial services through EcoCash, up to the unbundling and listing of its parent company, Cassava Smartech on the Zimbabwe Stock Exchange as well as the set up of Mascom (Botswana) and Econet Wireless Nigeria. Dr. Mboweni graduated with a Doctor of Philosophy (PhD) Degree in Business Leadership from the Zimbabwe Open University (ZOU) in 2019. In his doctorate thesis, he proposed the Leadership-Driven Resilience Model (LDRM), which theoretically proffered possibilities for business leaders to develop sustainable coping strategies in response to extreme business operating environments. Dr. Mboweni is also a visiting Professor of Practice at the University of Johannesburg since 2018 and is a holder of a Masters in Business Leadership (UNISA), and a BSc Mathematics and Computer Science degree from the University of Zimbabwe (UZ). In recognition of his leadership and his success, Dr. Mboweni has won several national and international accolades. He continues to show leadership through a number of youth mentorship programmes in the community and is an opinion leader on telecommunications and technology in Zimbabwe and abroad. Dr. Mboweni is married to Sarudzayi and they are blessed with 3 children.
Dr. Robert Van Til  
Chair and Pawley Professor of Lean Studies  
Department of Industrial and Systems Engineering  
Oakland University  
Rochester, Michigan, USA  

Lessons Learned Integrating Industry 4.0 into an Educational Program

Robert Van Til is the Pawley Professor of Lean Studies and Chair of Oakland University's Industrial and Systems Engineering Department. He earned a B.S. in Mechanical Engineering from Michigan State University as well as M.S. and Ph.D. degrees in Mechanical Engineering from Northwestern University. Dr. Van Til is also associated with Oakland University's Pawley Lean Institute. Dr. Van Til's educational and research interests focus on the modeling, analysis and control of manufacturing systems, lean and Industry 4.0. His projects have been supported by the National Science Foundation and the Michigan Economic Development Corp. as well as by companies such as Fiat Chrysler Automobiles, Ford.

2nd Day Keynote - Wednesday, December 9, 2020, 2:00 – 4:30 pm

December 9, 2020, Wednesday
Conference Co-Chair Remarks: December 9, 2020, Tuesday, 1:45 - 2:00 pm - Zoom Meeting Room 1

Keynote VI, Wednesday, December 9, 2020, 2:00 - 2:30 pm (Zimbabwe Time) / 8:00 am - 8:30 am (USA EST)

Professor Mqhele Dlodlo, PhD (FZweIE; Pr.Eng. (ECZ); FZAS)
Vice-Chancellor
National University of Science and Technology (NUST)
Ascot, Bulawayo, Zimbabwe

Innovative Industrialisation – the Impact of Education 5.0 on University Operations in COVID-19 Times

Mqhele Enock-Hershal Dlodlo (FZweIE, MIEEE, Pr.Eng. (ECZ), FZAS) earned a PhD (1996) from Delft University of Technology, a master's degree in electrical engineering (1989) from Kansas State University, and two bachelor's degrees in electrical engineering (1980), mathematics and independent studies in engineering management (1983), from Geneva College, Beaver Falls, PA, USA.

He is the Vice-Chancellor of the National University of Science and Technology. At the University of Cape Town, Rondebosch, South Africa, he is an Emeritus Associate Professor in telecommunications in the Electrical Engineering Department. His research interests are in wireless communication systems and applications.

An active member of the Communications Research Group (CRG) in the Telkom Centre of Excellence (CoE) for Broadband Networks and Applications he continues to co-supervise PhD students. His CoE projects have attracted substantial funding to the CoE from industry and THRIP since 2007. The research has led to over eighty international refereed publications, eight PhD theses and numerous master's dissertations.

Between May 2008 and August 2011, he successfully led a departmental team working on an Innovation Fund (TIA) Project T70026 on low-bandwidth video streaming, with a patent application filed in South Africa, and a number of international refereed publications. Team members: an Emeritus Professor, a PhD candidate and four MSc (Eng) students - two of the masters' students graduated with nearly error-free dissertations. Spin-off: an online business linked to a consortium consisting of UCT, CSIR (Meraka in Pretoria) and East Coast Access (Pty) Ltd (a media solutions provider in Durban). The research and development consortium handed the project over to a spin-off company, Tuluntulu (Pty) Ltd. The project brought R 2 477 410 to the department and commercialisation may bring in some profits in the medium term.

In the time at UCT, Prof. Dlodlo served as Assistant Dean for Internationalization and Programme Convener for the Master of Engineering (Telecommunications) degree programme. He has also designed curricula, taught, consulted, researched, headed departments and faculties at NUST as well as the Bulawayo Polytechnic over twenty-one years. In 2003 he became a Fulbright Senior African Scholar at Virginia Tech in America, studying Learning and Information Technology Initiatives for academic leadership in research, learning, and fundraising.

Keynote VII, Wednesday, December 9, 2020, 2:30 - 3:00 pm (Zimbabwe Time) / 8:30 am - 9:00 am (USA EST)

Corrado La Forgia
VP Operations Manager and Managing Director
BOSCH VHIT - CR
Offanengo, Lombardy, Italy

Title: “Digitalization of Production Processes”

How can we let the machines “talking”, transforming data in precious information  
How can we use artificial intelligence and how can we digitalize also old equipment (digital revamping)

Born in 1965, Mr. la Forgia Corrado Felice graduated at University in Bari as Mechanical Engineer and he started his career as manufacturing manager in companies like ANSALDO, OSRAM, MAGNETI MARELLI and BOSCH Group, for which he has been working for 12 years.
He had working experiences abroad (Germany and Austria) and he has been working as Managing Director and Operational Manager in Bosch plant in Crema (manufacturing plant for components in automotive market) for more than 7 years.

He is also Vice President and Deputy for Innovation in regional Confindustria Cremona (Industrial Association) and a member of National Task Force of Federmecanica (Mechanical Companies Association) on Industry 4.0 topic.

He worked together with Economics Department of University in Genova on digital innovation. Interested in innovation issues and in particular in enabler technologies of Industry 4.0, he is the author, together with Nicola Intini, Luca Beltrametti e Nino Guarnacci, of the book: ‘La Fabbrica Connessa - La manifattura italiana (attra)verso Industria 4’ (Edizioni Angelo Guerini e Associati S.r.l.).

In 2019 his second book ‘Ada, Alan and the Mysteries of The IoT’, written with Nicola Intini, Raffaella Misciosca, Sabrina De Santis and Pierpaolo Pontrandolfo (Angelo Guerini Editions and Associates S.r.l.) was published.

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Keynote VIII, Wednesday, December 9, 3:00 - 3:30 pm (Zimbabwe Time) / 9:00 am - 9:30 am (USA EST)

**Dr. Marco Lübbecke**

Professor of Operations Research  
RWTH Aachen University  
Aachen, North Rhine-Westphalia, Germany

Dr. Marco Lübbecke has been professor and holder of the Chair of Operations Research at RWTH Aachen University since 2010. Prof. Marco Lübbecke studied mathematics at the TU Braunschweig, where he graduated in 1996. He received his doctorate in mathematics from the same university in 2001. In 2007 he habilituated in mathematics at the TU Berlin. In 2009/2010 Marco Lübbecke was guest professor for discrete optimization at the TU Darmstadt before he was appointed to Aachen. Marco Lübbecke’s research is both theoretical and application-oriented. He regards his work as very interdisciplinary and feels at home in surgical research, algorithmic discrete mathematics and theoretical computer science.

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Keynote IX, Wednesday, December 9, 3:30 - 4:00 pm (Zimbabwe Time) / 9:30 am - 10:00 am (USA EST)

**Prof. Quinton Kanhukamwe**  
Vice Chancellor  
Harare Institute of Technology  
Harare, Zimbabwe

Eng Kanhukamwe has steered the Harare Institute of Technology (HIT) ship since its inception as a fully-fledged University in 2005. Its now boasts of five schools, five centres of excellence offering worldclass science, engineering and technology based degree programmes.

As a result of his astute leadership, HIT has received several accolades both on the local and international scene in recognition of academic excellence, engineering innovation, and innovation in the areas of the University’s mandate of technology development, incubation, transfer and commercialisation. HIT has also signed more than 80 collaborative agreements with renowned universities.

Eng Kanhukamwe’s academic career began in 1991, when he was appointed lecturer at the Bulawayo Polytechnic. In 1992, he moved on and was part of the founding team of academics at the National University of Science and Technology (NUST). In subsequent years, he proved his mettle leading to his appointment in 1999 as Chairman of the Industrial Technology Department and subsequently Dean of the Faculty of Industrial Technology. During this time also taught at Postgraduate level at NUST and the University of Zimbabwe.

In 2003 he was appointed Chairman of the Transformation Committee of HIT, which came up with the roadmap for developing HIT into a fully-fledged university. The promulgation of the HIT Act [Chapter 25:26] in 2005 was in part the outcome of the work of this committee. From 2005 to 2008, Eng. Kanhukamwe served as Pro-Vice Chancellor of HIT. He was then mandated to lead HIT as the Acting Vice Chancellor in 2008, until this appointment in as substantive VC in 2013.

Eng. Kanhukamwe holds an MSc in Engineering and is a member of the Institute of Industrial Engineers (MIIE-USA), Institute of Cast Metals Engineers (MICME-UK), Professional Engineer- Engineering Council of Zimbabwe (MZwE, Pr (ECZ)). He has well over 40 publications in refereed journals and currently pursuing a Doctor of Technology degree.

He is a board member of the Engineering Council of Zimbabwe and Zimbabwe United Passenger Company (ZUPCO), a member of World Technopoli Association (WTA), Southern Africa Regional Universities Association (SARUA), Association of African Universities (AAU), Oxford Club of Rectors, Zimbabwe Institution of Engineers, a Senator with the Junior Chamber International.

His research interests are in Technology Management, Modern Manufacturing, Techniques, Systems and Processes, Materials Management Systems, Optimisation of Cleaner Production in Manufacturing Industries, Maintenance Management as well as Properties of Manufacturing Materials.
**Keynote Speakers**

**Professor Paul Mapfumo**  
Vice Chancellor  
University of Zimbabwe  
Harare, Zimbabwe

BSc. (Hon.), M.Phil., D.Phil. Soil Science (UZ)  

Full Professor of Soil Science, Tropical Agro-systems Ecology and Climate Change. Areas of scientific expertise include: Research Innovations Design; Soil Carbon and Nitrogen Dynamics and Nutrient Cycling in Tropical Agro-ecosystems; Carbon Sequestration, Integrated Soil Fertility Management (ISFM); Biological Nitrogen Fixation (BNF); Soil geochemistry applications in agriculture and health; Agro-ecology, Climate Smart Agriculture; and Agro-systems Analysis.

Professor Mapfumo is internationally renowned academic, scientist and policy advisor known for his exceptional strength in critical and strategic thinking, and has contributed immensely in the design and implementation of scientific research and innovation programmes in Africa and globally. Serves on several national, regional and international technical and advisory boards.

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**3rd Day Keynote - Thursday, December 10, 2020, 2:00 – 4:30 pm**

December 10, 2020, Thursday  
Conference Co-Chair Remarks: December 10, 2020, Tuesday, 1:45 - 2:00 pm - Zoom Meeting Room 1

**Prof. Maneesh Kumar**  
Professor in Service Operations  
Cardiff Business School  
Cardiff University, Cardiff, UK

Maneesh Kumar is a Professor of Service Operations at Cardiff Business School, Cardiff University. He conducts cross disciplinary applied research in the area of Operational Excellence including topics such as Quality Management, Lean Six Sigma (LSS), Lean, Green, and Innovation (iLEGO), Healthcare Process/Service Innovation using Big Data Analytics, Knowledge Clusters for capability enhancement within SMEs. This has resulted in publications of over 120 journals and conferences papers, edited books, and conference proceedings. His research participants encompasses range of industry including Automotive Industry (India, UK, Japan), Service Industries and Public Sector organizations including NHS. His current research interests are integration of Operations Excellence with Industry 4.0 and Big data environment, Operational Capabilities development in micro and small companies through cluster formation, sustaining operations excellence, Innovative Circular Economy Business Models.

He is co-hosting 25th Lean Enterprise Research Centre (LERC) conference on 10th September 2019 in Cardiff university. He co-chaired 21st Quality Management & Organisational Development Conference hosted in Cardiff University from 22nd-24th August, 2018. He has also initiated a first practice based forum on Lean Green and Innovation (iLEGO) that brings practitioner community together to have engaged discussion on synergies and misalignments between the three topics and promote cross learning between different industries. The 3rd iLEGO workshop was hosted on 15th January 2019 in Cardiff University. He has been recognised for his outstanding contributions to teaching at Cardiff University’s Celebrating Excellence Awards 2018 in the category of ‘Excellence in Teaching including Training & Development’.

He has been involved in delivering LSS training up to Black Belt level and delivered several workshops on LSS application in different type and size of industries including Kwik-Fit Insurance Services, Standard Life, Admiral, Principality, Bakkavor Group, Norbert Dentressangle, Norgine Ltd., Celsa Steel, NHS Grampian, NHS Sheltand, Edinburgh City Council, Aberdeenshire Council, Automotive Component Manufacturers Association of India (ACMA) and Tata Motors. He is also a regular speaker at International Conferences and Seminars on LSS & Process Excellence.

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**Keynote XII, Thursday, December 10, 2020, 2:30 - 2:00 pm (Zimbabwe Time) / 8:30 am - 9:00 am (USA EST)**

**Prof. Nidhal Rezg, Ph.D.**  
Professor and Director of LGIPM  
University of Lorraine  
Metz, Grand Est, France  
Secretary General of the MATERIALIA Pole  
Director General of UPS DITEX

Nidhal Rezg is a professor at the University of Lorraine; he is a Doctor of Industrial Automatic from the National Institute of Applied Sciences (INSA) in Lyon in 1996. Accreditation to supervise research at the University of Metz in 2003. He was Professor at the Faculty of Engineering of the University of Moncton, New Brunswick Canada from 1997 to 1999 and Associate professor at the University of Metz until 2004, and currently holds the position of Professor of University. He is director of LGIPM laboratory since October 2006 and scientific responsible of the INRIA CuSTom team from 2007 to 2011. His research interest is the optimization of maintenance policies coupled to production, the optimal control SED. He is the author of sixty papers in international journals, directors of 12 theses and 4 Accreditation to supervise research. Keywords researches are modeling, simulation and optimization of stochastic processes, reliability and maintenance and Petri nets.
Professor Ephraim Tobela Gwebu, PhD
Vice Chancellor
Solusi University
Bulawayo, Zimbabwe

Professor Ephraim Gwebu has been involved in tertiary education as a teacher/administrator and biomedical research trainer in the USA (1978 – 2015). He is the current Vice-Chancellor of Solusi University. Prior to this appointment he held the following positions: Dean of the School of Science and Technology at Rusanga University, Zambia (2016-2018); Head of the Department of Chemistry Physics and Environmental Science at Elizabeth City State University (ECSU) (a constituent of the University of North Carolina System, USA (2003 -2015); Director of Research and Faculty at Oakwood University (OU) (1978-2003); He was funded by the National Institutes of Health, NIH (USA), National Science Foundation, NSF (USA), National Aeronautics and Space Administration (NASA), Centers for Disease Control (CDC) and Howard Hughes Research Institute USA (1988 - 2014) as Director/Principal Investigator of biomedical research training programs while a faculty member at OU and ECSU. He has been a member of Study Sections of NIH and NSF and South African National Research Foundation (NRF) to review proposals for funding by these agencies. He collaborated with NASA and Bio Space Technology Group to design and perform an experiment aboard the NASA Columbia shuttle in 2003. This is the NASA Shuttle that exploded upon entry into the atmosphere in January 2003. The experiment was an attempt to stimulate nerve regeneration under conditions of zero gravity. Inability of nerve to regenerate after an injury to the nervous system is a major cause of paralysis.

Professor Gwebu was Director General Research in the Ministry of Health, Zimbabwe (1981-1985). In 1983, he established the Zimbabwe National Cancer Registry with funding from the World Health Organization (WHO). He has also collaborated with colleagues at the University of Swaziland, University of Zululand, University of Botswana and currently collaborates with the University Fort Hare and Walter Sisulu University in South Africa on drug discovery.

He obtained his PhD from The Ohio State University USA in Medical Biochemistry, having been exempted for the M.Sc., and a B.Sc. in Chemistry with Education from the University of Sierra Leone (Njala). He is a member of the following professional societies: American Society for Biochemistry and Molecular Biology, American Chemical Society, Society for Neuroscience, Society for In Vitro Biology, American Public Health Association and American Association for the Advancement of Science. He was the 2015 recipient of the University of North Carolina Systems Board of Governors Award for Excellence in Teaching.

Professor David Simbi was born on 6 June 1952 near Nyazura. He enrolled at Dowa Council Primary School in 1959, transferred to Nyazura Mission in 1966 and finally Solusi Secondary School in 1970. David's first employment was as a Technical Laboratory Assistant and Temporary Secondary School Teacher at Solusi after his 'O' Levels in 1972. In 1974, David secured a place and enrolled at Glenside Hospital in Bristol, UK for a Mental Health Nurse Certificate at Brunnel College.

Concurrently, he studied for his Ordinary national certificate in Maths, Physics and Chemistry. David immediately enrolled for a BSc in Applied Chemistry at the University of Portsmouth in 1977. Graduating with BSc Hons degree in 1981, David was offered a PhD scholarship in Metallurgy specializing in Corrosion Engineering at the University of Leeds and successfully defended his thesis in 1984.

After completing his PhD David returned to Zimbabwe, and in 1985 was appointed a Manager responsible for Technical Development at ZISCO Steel (Pvt) Ltd. In 1988, David joined the University of Zimbabwe as a lecturer in and was promoted to Senior Lecturer in 1994. He was approached and requested to take up the post of Works Executive at ZISCO in 1999 in a bid to resuscitate and operationalise Blast Furnace No. 4 and returned to the UZ upon completing his task in 2000.

In 2002, he was promoted to Associate Professor and eventually Full Professor in 2005. Professor Simbi contributed immensely to the Metallurgical Engineering field at the University of Zimbabwe and other Universities within the region. He chaired the Department of Metallurgy for 2 terms between 1991-94 and 1996-99 and also serving as Deputy Dean from 1997-1999 and briefly in 2003 before taking over the full reigns as Dean of the Faculty of Engineering towards the end of the same year. In 2005 he was appointed the Pro Vice Chancellor of Chinhoyi University Technology (C.U.T) and has been the Vice Chancellor of C.U.T from 2006.

Professor Simbi has held several Visiting appointments (Visiting Research Fellow, Visiting Senior Lecturer and Visiting Professor such prestigious institutions as University of Cape Town, University of Zambia, British Steel Corporation, Duisburg University and Aachen University of Technology both in Germany. He also sits on a number of Boards including Tobacco Industries Marketing Board and SIRDC and he is also the current Chairman of Kwekwe Polytechnic Advisory Council. He was also the Vice Chairman of the Manicaland University of Applied Sciences Foundation Committee. Professor Simbi has taught and continues to teach several courses in Metallurgy and Chemical Engineering ranging from pyrometallurgy, corrosion engineering, construction materials, fuels, energy and environmental studies. He has also successfully supervised 13 MPhil students and 6 DPhil students. Professor Simbi has published over 50 papers in refereed journals. He has also reviewed a number of books mainly in corrosion and has also published numerous technical reports of consultancies. He is currently working on a text book on Corrosion for undergraduate.

Professor Simbi acknowledges the contributions made by various professionals and people in his academic development. Notable ones are: his cousin, the late Professor Made, the former UZ librarian who took care of all his educational needs during secondary school, his several mentors from the University of Portsmouth and the University of Leeds, his long time colleague and friend, Dr. Chinayamakubvuki for providing the necessary assistance as a teacher and administrator.
competition when it came to research publications and of course his father and mother, who unknowingly provided his foundation as a seasoned metallurgist and chemical engineer.

Lastly, Professor Simbi does not live on his own. He is a very happily married man to Margaret Masenda-Simbi and the couple has been blessed with three children 2 girls and 1 boy. He draws most of his inspiration from his family, Mrs. Simbi and the children and God Almighty.

Keynote XV, Thursday, December 10, 4:00 - 4:30 pm (Zimbabwe Time) / 10:00 am - 10:30 am (USA EST)

**Professor Thong Ngee GOH**
Emeritus Professor
Department of Industrial Systems Engineering and Management
Former Head of the Industrial and Systems Engineering Department
Former Dean of Engineering
National University of Singapore

**Title:** Megatrends facing the Industrial Engineers

GOH, Thong Ngee holds a PhD from the University of Wisconsin-Madison and is a Registered Professional Engineer. A Project Specialist at Lockheed Aircraft before joining the National University of Singapore, he has served as Head of the Industrial and Systems Engineering Department and Dean of Engineering; he was also Director of the University’s Office of Quality Management. He was CEO of Design Technology Institute International, a joint venture between Singapore and the Netherlands.

Professor Goh is a Founding Fellow of the Singapore Academy of Engineering, and Founder President of the Singapore Institute of Industrial Engineers. He has been named “Educator of the Year” by the IEEE Engineering Management Society, was recipient of the inaugural Masing Book Prize of the International Academy for Quality, Harrington-Ishikawa Medal of the Asia-Pacific Quality Organization, the William Hunter Award and the Eugene Grant Medal of the American Society for Quality.

Professor Goh has been on the editorial boards of some ten international research journals, published more than four hundred technical papers and six specialized books. A frequent invited speaker at professional conferences and corporate meetings, he has served variously as advisory board member, awards judge, external examiner or reviewer for academic institutions and government agencies in various countries.

**Abstract:** Many Industrial Engineering and Operations Research curricula today in universities and colleges are still built upon traditional paradigm along the line of “Scientific Management”. While canonical techniques are useful, new breeds of IEOR practitioners should deliberate beyond them and consciously make themselves relevant in the days to come. In this presentation, some notable megatrends that exist in the real world are highlighted to bring about awareness of various related issues.

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**19th IEOM Global Engineering Education**

**DISTINGUISHED SPEAKERS**

**Session I: Global Engineering Education**

Session Chair: Dr. Şirin Tekinay, American University of Sharjah, UAE

12:00 – 1:40 pm (Tuesday, December 8)

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**Dr. Şirin Tekinay**

Dean
College of Engineering
American University of Sharjah
Sharjah, UAE
Chair, Global Engineering Deans Council

Prof. Şirin Tekinay joined American University of Sharjah as Dean of Engineering starting February 1, 2020. Prof. Tekinay has held posts of academic administration as Dean of Engineering and Natural Sciences, Vice President for Research and Development, and Rector during the last decade. Prior to her tenure in Istanbul the last decade, she lived in the United States where she served as Program Director at the US National Science Foundation; she was tenured faculty at the Department of Electrical and Computer Engineering, New Jersey Institute of Technology, and Director of NJ Center for Wireless Telecommunications. She is the elected ’19-’21 Chair of Global Engineering Deans Council (https://www.gedcouncil.org ) and a Board Member of the European Society for Engineering Education. Before starting her academic career, she was a researcher at Bell Laboratories. Dean Tekinay holds the PhD degree in Electrical and Computer Engineering from George Mason University, Virginia, and the MS and BS degrees in Electrical-Electronics Engineering from Bogazici University, Istanbul.

Professor Tekinay holds nine patents and has authored numerous publications in her field. She has graduated six doctoral students. Her areas of interest include network science, mobile networks, sensor networks, and applications. She founded the first digital local fabrication laboratory in Turkey; “FabLab Istanbul,” and has helped develop the next few FabLabs in the country. SU boasts the 4th and best equipped FabLab in Turkey. She also started the first comprehensive program in Urban Engineering research and education.

She is one of the pioneers of the five-dimensional STEAM (Science, Technology, Engineering, Arts, Mathematics) approach to education and research, in addition to new multidisciplinary lines of study, innovation and entrepreneurship, and the Maker Movement through FabLabs.

In the global arena, she is a member of European Engineering Deans Council – EEDC. She is a consultant and expert reviewer for the European Commission (EC) on Science and Technology. She sits as elected member on the Board of Directors of the European Society for Engineering Education (Societe Européenne pour la Formation des Ingénieurs – SEFI) and on the Executive Committee of the Global Engineering Deans Council – GEDC. Nationally, she is an honorary member of the board of Beyaz Nokta Development Foundation and a member of the advisory board of KAGİDER (Women Entrepreneurs Association of Turkey).

Education

Ph. D. Electrical and Computer Engineering George Mason University, VA 1994
M.S. Electrical & Electronics Engineering Bogazici University, Istanbul, Turkey 1991
B.S. Electrical & Electronics Engineering Bogazici University, Istanbul, Turkey 1989

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**Dr. Mohamed Essaaidi**

Professor
Abdelmalek Essaadi & Mohammed V Universities
Past Dean, ENSIAS
Past Director International Coop. at Ministry of General Affairs and Governance, Morocco
Rabat, Morocco

Prof. Dr. Mohamed Essaaidi is professor Abdelmalek Essaadi & Mohammed V Universities. He was Dean of ENSIAS College of Engineering of Mohammed V University, Rabat, Morocco from December 2011 to 2019 and he was a Professor of Electrical & Computer Engineering at Abdelmalek Essaadi University, Morocco from 1993 till 2011. He is the founder and past Chairman of the IEEE Morocco Section (2005-2015), co-founder of IEEE Computer & Communication Societies Joint Morocco Chapter, IEEE Antennas and Propagation Society and Microwave Theory and Techniques Society Morocco Joint Chapter and EEE Education Society Morocco Chapter. He has been also the founding Director of the Morocco Office of Arab Science and Technology Foundation, ASTF (2006-2009) and the Coordinator of ASTF RD&I Network of Electro-Technology since 2006. He has also founded several IEEE Student Branches in different Moroccan universities and engineering schools. Furthermore, he has been a nonvoting member of IEEE Global Committee on Accreditation activities since 2015.

He has authored and co-authored 5 books and more than 200 papers in international refereed journals and conferences in the field of Electrical and Information and Communication Technologies. He has been the Editor-in-Chief of International Journal on Information and Communication
Funso Falade is a Professor of Civil Engineering at University of Lagos. He joined the Department of Civil Engineering at the University of Ife (now Obafemi Awolowo University), Ile-Ife, Nigeria in 1986 as an Assistant Lecturer. He commenced teaching as Lecturer I at the Department of Civil Engineering, University of Lagos in 1992. He was appointed Professor in 2001. He was Head of the Department of Civil and Environmental Engineering and he is the current Dean of Faculty of Engineering at the University of Lagos. He has published widely on the short- and long-term structural behaviours of innovative construction materials and engineering education. He has to his credit over 95 articles published in local and international reputable journals and has made contribution to two books. Prof. Falade is the author of a book titled 'Strengthening of Distressed Buildings'. He has presented over 45 papers at workshops and seminars on such subjects as project management, quality control, maintenance of facilities and contract procurement process etc. He was given an Award at the First Nigerian Universities Research and Development Fair for the presentation of a research project of high standard and with relevance to National development in 2005. He obtained University of Lagos best researcher award in Faculty of Engineering in 2005 and 2010. In 2016, the International Federal of Engineering Education Societies (IFEES) 10th Anniversary Leadership Award was presented to Prof. Funso Falade along with other Five person from the other regions in the world for their consistent, meaningful contributions to the work of the IFEES community and global engineering education since its inception. He also teaches at the Redeemed Christian Bible College, Christchurch Parish, Lagos, Nigeria. He was appointed Member, 2017 Pan-African Adjudication for the Prestigious DSTv Eutelsat Star Awards in Uganda in April, 2018. Prof Falade is a Member, UNESCO Engineering Report (ER) II Advisory Board. Prof. Falade is the Coordinator of the Higher Education Partnership in Sub-Sahara Africa (HEPSSA) Project in University of Lagos. University of Lagos is a Spoke University attached to the Hub University – University of Port Harcourt. The position was given to University of Lagos based on the proposal that Prof. Falade and his team submitted to the Royal academy of Engineering, UK in 2017.

In 2002, Prof. Falade initiated the African Regional Conference on Engineering Education (ARCEE) which led to the establishment of the African Engineering Education Association (AEEA) in 2006 in South Africa. He was the founding President and the current President of the Association. He was a Vice-President of the International Education Partnership for Engineering Education Societies (IFEEES; 2008-2012). He is a member of the Governing Board of the International Centre for Engineering Education (UNESCO Category II Centre) jointly owned by Tsinghua University and Chinese academy of
Engineering, China. In 2013, Prof. Falade championed the inauguration of the African Engineering Dean’s Council (AEDC) which took place during the 5th African Regional Conference on Engineering Education 2013 (ARCEE 2013) at the University of Lagos, Lagos, Nigeria. He was the Chairman, ARCEE Organising Committees in 2002, 2004 and 2013. He coordinated the 2006 and 2008 series of the African Regional Conference on Engineering Education in South Africa and Tanzania respectively. He has organised Capacity Building Workshops for Engineering and Technology Educators in West and Central Africa in 2015 and 2016 respectively. He has developed a network with African Engineering Educators in Diaspora who now facilitate at Capacity Building Workshop to assist in skills acquisitions by the engineering educators that are home-based in Africa.

Prof. Falade was the Editor-in-Chief of the Journal of Engineering Research (JER), Faculty of Engineering in 2008 – 2012. He was the Editor-in-Chief of the Unilag Journal of Medicine, Science and Technology in 2014 – 2017. He is also the editor-in-chief of the African Journal of Engineering education (AJEE) which maiden edition was launched during the 6th AEEA International Conference at Central University of Technology, Bloemfontein, South Africa in September, 2016.

Prof. Falade was a Member/Chairman of the National Universities Commission (NUC) ad hoc Panels and Member/Chairman Council for the Regulation of Engineering in Nigeria (COREN) Accreditation panels to evaluate engineering programmes in some Nigerian Universities. He also served as a Member/Chairman, Federal Ministry of Environment Technical Panels to review the Environmental Impact Assessments of some proposed project. He is a COREN Registered Engineer; Fellow, Nigerian Society of Engineers; Fellow, Nigerian Institution of Structural Engineers; Fellow, Nigerian Academy of Engineering; Fellow, African Engineering Education Association; Fellow, Nigerian Institute of Chartered Arbitrators and a member of the Nigerian Institute of Management.

Abstract

This paper examines innovative method and advocates a paradigm shift from passive to active teaching methods that provide better engagement between the teachers and students as well as among students working in different groups. Two pedagogical methods are discussed in this paper namely; project-based and team-based learning. The challenges inherent in their adoption are highlighted.

The paper recommends the need for the training of engineering and technology educators in the use of innovative teaching methods for them to be more imperative to their students thus enhancing the quality of engineering and technology graduates.

1:20 – 1:40 pm (Tuesday, December 8)

Dr. Gamal S. Ahmed
Assistant Professor
Najran University
Saudi Arabia
Past Professor, Researcher, and Consultant at Ministry of Education, Egypt

Dr. Gamal S. Ahmed is working as an assistant professor at Najran University, Saudi Arabia. He was a professor, researcher, and consultant at Ministry of Education, Egypt, from 1986 to 1998. He received PhD in Education (Curricula & Methods of Teaching) Educational Studies Institute, Cairo University, Egypt, 1998-2001. Dr. Gamal was as Associate Professor of Education (teaching methods, science teaching, curriculum, and microteaching) including teacher education program adviser. He worked at Educational Studies Institute – Cairo University, Faculty of Education, October 6 University, EGYPT, 2001 -2004. EL-Gabal EL-Garby University, LIBYA, 2004-2007. He is an academic supervisor for master and doctorate at ABMS Switzerland. Dr. Gamal is a reviewer of the American Journal of Education and Information Technology, The International Journal of Virtual and Personal Learning Environments (IJVPLE), and The International Journal of Web-Based Learning and Teaching Technologies (IJWLTT). He has published numerous papers. Dr. Gamal is a professional trainer, covering management, education, media, and humanity development fields. Deanship of the Community Service, Najran University, Saudi Arabia. From 2013 up to now.

Session II: Global Engineering Education

Session Chair: Dr. Maxwell Chanakira, Harare Institute of Technology, Zimbabwe

10:00 – 11:40 am (Wednesday, December 9)

Prof. Oswell Hapanyengwi
Dean: Faculty of Education
University of Zimbabwe
Mt Pleasant, Harare, Zimbabwe

Oswell Hapanyengwi is currently the Executive Dean of the Faculty of Education at the University of Zimbabwe. He is an Associate Professor of Philosophy of Education in the Department of Educational Foundations. Prior to his appointment as the Executive Dean of the Faculty of Education in 2015, Professor Hapanyengwi was the Deputy Dean of the Faculty of Education and Chairman of the Department of Educational Foundations. He heads the secretariat of the Senate Sub-Committee on Associate/ Affiliate colleges that superintends over all associate colleges of the University of Zimbabwe. Professor Hapanyengwi is leading in the transformation of the Faculty of Education to enable it to fulfill its mandate as defined in Education 5.0, the University of Zimbabwe strategic Plan 2019-2025 and national Vision 2030. He believes that education is the pulse of the nation and defines and determines its developmental trajectory.
Prior to his appointment as Pro Vice Chancellor, Dr. Chanakira served as the Acting Director of the Technopreneurship Development Centre at HIT. Technical Committee on Public Private Partnerships. Of the Msasa Industrial and Training College (MITC). He also serves as Chairperson of the National Manpower Advisory Council (NAMACO). In area of community service, Dr Chanakira has served on local boards in varying capacities. He was a Deputy Board Chairman of the Advisory Council and is an external examiner of PhD theses for several local institutions.

He has distinguished himself in institutional advancement and has garnered financial support and partnerships for the Institute over the years. In the area of community service, Dr Chanakira has served on local boards in varying capacities. He was a Deputy Board Chairman of the Advisory Council and is an external examiner of PhD theses for several local institutions.

In March 2010, Dr. Chanakira joined the Harare Institute of Technology as a Lecturer. He has taught courses in the areas of Technopreneurship, Innovation, Business Leadership and Strategy. He has published and presented over 25 papers in the areas of strategy, innovation, incubation, and commercialisation of technology, including five book chapters. He has also reviewed several international journals in Europe and the United States.

Dr. Chanakira's career spans over thirty years. His first appointment was in 1985; with the Zimbabwe Posts and Telecommunications Corporation as a Telecommunications Technician. He rose through the ranks becoming a Chief Telecommunications Technician, Area Manager and was later appointed Manager - Access Network CBD East Harare, - a post equivalent to that of Regional Manager. After leaving the PTC, Dr. Chanakira became the Project Manager for the Telecommunications Network Rehabilitation in Lesotho. In 2005, Dr. Chanakira was appointed a Lecturer in Strategic Management, MIS and Operations Management at the Management College of Southern Africa, with subsequent appointments at the Regent Business School and Tshwane University of Technology Business School.

In March 2010, Dr. Chanakira joined the Harare Institute of Technology as a Lecturer. He has taught courses in the areas of Technopreneurship, Innovation, Business Leadership and Strategy. He has published and presented over 25 papers in the areas of strategy, innovation, incubation, and commercialisation of technology, including five book chapters. He has also reviewed several international journals in Europe and the United States.

Prior to his appointment as Pro Vice Chancellor, Dr. Chanakira served as the Acting Director of the Technopreneurship Development Centre at HIT.
11:00 – 11:20 am (Wednesday, December 9)

Dr. Noha Mostafa
Assistant Professor of Industrial Engineering and Management
The British University in Egypt
Cairo, Egypt

Dr. Noha Mostafa is an assistant professor of industrial engineering and management in The British University in Egypt. She was a visiting PhD student in Tokyo Institute of Technology, Japan in 2016 and she finished her PhD degree in 2017 from Egypt-Japan University of Science and Technology (E-JUST), Alexandria, Egypt. She has broad research interests including supply chain management, logistics, Internet of Things, sustainability, quality management, design thinking, Lean manufacturing, information systems, and entrepreneurship. In addition, she is supervising M.Sc. students and graduation projects and has participated in several international and local conferences and competitions. She is the founder and faculty advisor of IEOM student chapter in Zagazig University.

11:20 – 11:40 am (Wednesday, December 9)

Dr. Rex Aurelius C. Robielos
Dean
School of Industrial Engineering and Engineering Management
Mapua University
Intramuros, Manila, Philippines

Industrial Engineering Education in the Philippines: Issues and Concerns

Rex Aurelius C. Robielos is the Dean of the School of Industrial Engineering and Engineering Management at Mapua University. Before joining Mapua, he was Section Manager of Operations Research Group, Analog Devices General Trias. He has a BS in Applied Mathematics from the University of the Philippines Los Baños, and a Diploma and MS in Industrial Engineering from the University of the Philippines Diliman. He is pursuing Ph.D in Industrial Management (candidate) at National Taiwan University of Science and Technology in Taiwan. He is the current Secretary of Human Factors and Ergonomics Society of the Philippines and Director of the Philippine Institute of Industrial Engineers and Operations Research Society of the Philippines.

Session III: Global Engineering Education
Session Chair: Dr. Adedeji Badiru, Air Force Institute of Technology, Wright-Patterson AFB, Ohio, USA
12:00 – 1:40 pm (Wednesday, December 9)

12:00 – 12:20 pm (Wednesday, December 9)

Dr. William Msekiwa Goriwondo
Dean
Faculty of Engineering
National University of Science and Technology
Bulawayo, Zimbabwe

Engineering Education through Industry – Academia Partnerships in the Fourth Industrial Revolution era

A registered Professional Engineer with an MSc. degree in Manufacturing Systems & Operations Management as well as a Doctor of Philosophy (PhD) degree. Proven track record of technical, operational and strategic leadership, spanning over 20 years in Industry and Academia. Currently the Executive Dean of the Faculty of Engineering at the National University of Science and Technology (NUST), a Senior Lecturer, Researcher and an Engineering & Management Consultant. He is member of the Institute of Directors Zimbabwe (IoDZ), Fellow and Board member of the Zimbabwe Institution of Engineers (ZIE). Dr Goriwondo has won several Awards that include the ZIE’s Stevens Award (2019) for his work on training engineering practitioners on Project Management principles using computer software. He has also won the Global Engineering Education Award by the Industrial Engineering and Operations Management (IEOM) Society. An experienced Project Manager and team player with advanced strategic planning skills. Dr Goriwondo is a published researcher with over 25 peer reviewed journal papers and conference proceedings as well as several other technical newspaper articles. He is a passionate leader in engineering education, manufacturing excellence, resource utilisation and World Class Manufacturing (WCM). Prior to joining NUST in 2006, he held several engineering and management positions at BP and Shell Marketing Services as well as being Production Manager at Turnall Fibre Cement. Dr Goriwondo has been involved with many collaborative projects with national, regional and international partners. He has been engaged as an external examiner for postgraduate projects at the University of Johannesburg (UJ), Tswane University of Technology (TUT) as well as Chinhoyi University of Technology (CUT).
Dr. Deji Badiru is the Dean and senior academic officer for the Graduate School of Engineering and Management at the Air Force Institute of Technology (AFIT). Dr. Badiru was previously Professor and Head of Systems Engineering and Management at AFIT, Professor and Department Head of Industrial & Information Engineering at the University of Tennessee in Knoxville, and Professor of Industrial Engineering and Dean of University College at the University of Central Florida. He is a registered professional engineer (PE), a certified Project Management Professional (PMP), a Fellow of the Institute of Industrial Engineers, and a Fellow of the Nigerian Academy of Engineering. He holds BS in Industrial Engineering, MS in Mathematics, and MS in Industrial Engineering from Tennessee Technological University, and Ph.D. in Industrial Engineering from the University of Central Florida. His areas of interest include mathematical modeling, systems efficiency analysis, and high-tech product development. He is the author of over 30 books, 35 book chapters, 75 journal articles, 115 conference proceedings and presentations. He has conducted customized training workshops for numerous organizations including Sony, AT&T, Seagate Technology, U.S. Air Force, Oklahoma Gas & Electric, Oklahoma Asphalt Pavement Association, Hitachi, Nigeria National Petroleum Corporation, and ExxonMobil. He holds a leadership certificate from the University Tennessee Leadership Institute. He has served as a Technical Project Reviewer, curriculum reviewer, and proposal reviewer for several organizations including The Third-World Network of Scientific Organizations, Italy, National Science Foundation, National Research Council, and the American Council on Education. He is on the editorial and review boards of several technical journals and book publishers. He is also a program evaluator for ABET, the international engineering and technology accreditation body. In 2011, Prof. Badiru led a research team to develop analytical models for Systems Engineering Research Efficiency (SEER) for the Air Force acquisitions integration office at the Pentagon. He has led a multi-year composite manufacturing collaborative research between the Air Force Institute of Technology and Wyle Aerospace Group. He is the founder of the Association of Military Industrial Engineers (AMIE).
Mrs. Barbara Nhemachena  
Quality Promotion and Development Officer  
Zimbabwe Council for Higher Education (ZIMCHE)  
Zimbabwe

Session IV: Global Engineering Education  
Session Chair: Dr. Tamale T. Kambikambi, Deputy Vice Chancellor, University of Zambia  
12:00 – 1:40 pm (Thursday, December 10)

Dr. Noreffendy Tamaldin  
Dean, Center for Graduate Studies  
Universiti Teknikal Malaysia Melaka  
Air Keroh, Malacca, Malaysia

Noreffendy Tamaldin received his BSc Degree in Mechanical Engineering (Honors CUM Laude) in 1998 and M.Eng in Mechanical Engineering - specialization Mechatronics in 2000 from the University of Hartford, CT, USA. He received several Awards during his study such as the Malaysian Embassy Washington DC Excellent Awards, Cum Laude and ASME Senior Capstone Project Award in 1998. He received his PhD Degree in Automotive Engineering from Coventry University, U.K. in 2010 with research consortium between Jaguar Land Rover, Ford Motor, EMCON Technologies (Faurecia), and Johnson Matthey. In 2014 he has successfully completed Executive Management program at Kellog School of Management, Northwestern University, Chicago, USA.

He started his career as New Product Development & Introduction Engineer (R&D) at ON Semiconductor Sdn. Bhd (formerly Motorola) in 2000 and later joint Faculty of Mechanical Engineering, UiTM Shah Alam in 2002 and, UTeM in 2003. Upon completion of his PhD study, he has been promoted to senior lecturer in 2011 and later to Associate Professor in September 2014 and Professor in November 2018. Currently, he is supervising 4 Ph.D. and 5 Master and graduated 1 Phd and 12 Master students. He has also successfully completed more than 50 research projects, over 20 consultation with industries and currently; there are more than 7 ongoing projects at both national and international levels including industry grants worth over RM3 million. The most prestigious grants involved are from European Union for 2 Erasmus+ Capacity building program worth approximately RM4.8 million each project with consortium from 6 countries in which 3 from Europe (Germany, Austria, Italy) and 3 from South East Asia (Malaysia, Thailand, Indonesia) as well as 2 industry partners from Thailand and Malaysia.

His expertise in Automotive and mechanical engineering has been recognized locally and internationally by giving public lecture, invited speaker and Keynote Speech in more than 12 sessions at local and international level including in Borobudur International Symposium 2019, International Conference on Advanced Processes and Systems in Manufacturing 2016, National Hybrid Automotive Seminar 2014 Kuala Lumpur, Smart Automotive Climate Control 2012, Wiesbaden, Germany, Proton and MPOB. His publications include more than 70 journals and proceedings in both ISI and Scopus indexed articles. He also received Outstanding Paper Award 2017 by Emerald Publishing UK for publication in Industrial Lubrication & Tribology. Recently, he has authored 1 handbook translation in Plain Bearing in collaboration with Japanese Plain Bearing Standard Association (JPBSA). More than 20 conferences, seminars, workshops and courses at both international and national levels have been attended. He has won more than 23 academic and research awards. Four (4) intellectual properties have been filed involving Patent for HHO, River Trash system and Copyright lubrication technology. Currently, he is the Dean of Centre for Graduate Studies, UTeM. In addition, he is also a Chartered Engineers with IMechE, UK and Professional Technologist with MBOT Malaysia as well as member of BET, IEM and Executive Member of Malaysian Tribology Society (MYTRIBOS).

Dr. Eng. Wilson R. Nyemba  
Department of Industrial and Mechatronics Engineering  
Past Dean, Faculty of Engineering  
University of Zimbabwe  
Mount Pleasant, Harare, Zimbabwe

Dr. Wilson R. Nyemba is a Senior Lecturer in Mechanical Engineering at the University of Zimbabwe with over 30 years of experience both in industry and academia. He designed and developed a wide range of engineering products in different capacities in industry from product development to engineering management. He also formulated and led a number of successful ventures at the University of Zimbabwe where he served as Head of Department of Mechanical Engineering as well as Dean of the Faculty Engineering. He also served as Chairman of WaterNet and Project Manager for the Royal Academy of Engineering projects for enhancing practical skills for engineering academics in Southern Africa. He is an accomplished consultant and researcher with interests in Engineering Education, Capacity Building and Sustainability, Systems Thinking and Modelling as well as Computer Aided Engineering. Wilson holds a BSc Honours degree in Mechanical Engineering from the...
Dr. Joseph M. Ogundu is the president /CEO of Emerald Global Consulting Inc., a Farmington Hills, Michigan based consulting firm. Dr. Ogundu has extensive experience in academia, leadership, project management, business process excellence, lean transformation, six-sigma, supply chain management and supplier quality, change management, operations, industrial engineering, manufacturing and process engineering, quality engineering and quality assurance. Dr. Ogundu is a lean practitioner and six-sigma practitioner that sees lean six-sigma as operations management philosophy that is based on the relationship between waste reduction and elimination, quality improvement and operations performance measures.

Dr. Ogundu was Adjunct professor, Industrial and Systems Engineering at both Lawrence Technological University, Southfield Michigan and Oakland University, Rochester Michigan, as well Adjunct Professor: Business Administration, Kettering University, Flint Michigan. He thought courses in both undergraduate and graduate levels and the courses were Lean Systems Application, Quality Assurance and Control, Total Quality Management, Operations Research and Stochastic Processes, Manufacturing Processes, Advanced Quality Planning, Supplier Quality, Business Statistics, Lean Six-Sigma, Production Planning and Control, Materials and Inventory Management and Operations Management. Dr. Ogundu worked in the following industries, Automotive, Oil and Gas, Manufacturing, Consulting, Energy and Health Care. Dr. Ogundu is the author of the book "The Relationship between Types of Waste and Operating Performance Measures."

Dr. Ogundu graduated with a Doctorate Degree in engineering and manufacturing systems, Masters in business administration from Lawrence Technological University, Master's Degree in Manufacturing Engineering from Wayne State University and a Bachelor's Degree in Industrial Engineering from University of Tennessee. Knoxville, Tennessee. Dr. Ogundu spent the earlier years of his career in engineering, leader and senior management positions as director and executive director at Country Coach Inc, process engineering manager at DaimlerChrysler AG, Senior Operations leader at Chrysler Corporation, facilities engineer and project manager at Ford Motor Company and Senior Product Engineer at General Motors Corporation. Dr. Ogundu has served as board member of Lawrence Tech University College of Management Alumni Association, Finer Operations leader at Chrysler Corporation, facilities engineer and project manager at Ford Motor Company and Senior Product Engineer at General Motors Corporation.

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DECEMBER 8, TUESDAY, 10:00 AM – 11:45 AM, ROOM 1
GLOBAL BUSINESS MANAGEMENT EDUCATION I
SESSION CHAIR: DR. THEO TSOKOTA, MIDLANDS STATE UNIVERSITY, GWERU, ZIMBABWE

10:00 – 10:20 AM (TUESDAY, DECEMBER 8)

**Dr. Leonardo Frizziero, PhD Engineer**
Senior Assistant Professor  
DIN - Department of Industrial Engineering  
ALMA MATER STUDIORUM University of Bologna  
Viale Risorgimento, 2 – 40136 Bologna – Italy

Leonardo Frizziero is a Senior Assistant Professor of the Department of Industrial Engineering, at Alma Mater Studiorum University of Bologna. He promotes the scientific issues related to the Mechanical Design and Industrial Design Methods (CAD 2D, 3D, Advanced Design, QFD, TRIZ, DFSS, DFD, DFA, etc.). In 2005, he was recruited by Ferrari Spa, as project manager of new Ferrari cars projects. In 2009 he came back to University, obtained the Ph.D. degree and started collaborating with the Design and Methods Research Group of Industrial Engineering becoming Junior Assistant Professor in February 2013 at DIN of AMS University of Bologna. He teaches and follows researches in the design fields, participating at various competitive regional, national and international research projects. Since 2018 he has been a Senior Assistant Professor. Since 2017 he is qualified Associate Professor of Design and Methods of Industrial Engineering (ING-IND/15). Prior to the role of university professor, he held relevant positions for some industrial companies.

10:20 – 10:40 AM (TUESDAY, DECEMBER 8)

**Ms. Tekla Manyika**  
Master’s in Purchasing and Supply Management  
Zimbabwe

10:40 – 11:00 AM (TUESDAY, DECEMBER 8)

**Dr. Crispen Karanda**  
ICDESIEC

11:00 – 11:20 AM (TUESDAY, DECEMBER 8)

**Gertjan van Stam**  
Transdisciplinarian  
Zimbabwe

*Dynamism and located symbols: diversity in ubiquitous computing*

Gertjan lives in Zimbabwe. He has been involved with strategic developments in information and communication technologies in Africa since 1987. He holds an M Tech (cum laude) in ICT from Nelson Mandela University in South Africa and a PhD in Cultural Studies from Tilburg University. His research focuses on the mechanisms at the junctions of society and technology in (rural) Africa.

11:20 – 11:40 AM (TUESDAY, DECEMBER 8)
Dr. Theo Tsokota
Senior Lecturer
Department of Information Systems
Midlands State University
Gweru, Zimbabwe

Dr. Theo Tsokota is a Senior lecturer at the Midlands State University, in the Department of Information Systems. His areas of interest include innovation, ICT4D, ecommerce and IT governance. Theo holds a Bachelor of Science(Honours) in Information Systems from the Midlands State University, a Postgraduate Diploma in Education from Zimbabwe Open University and a Master of Business Administration -Management Information System from Maastricht School of Management and PhD Information Technology from Nelson Mandela Metropolitan University, South Africa.

11:40 – 12:00 am (Tuesday, December 8)

Dr. Rajeev Agrawal
Associate Professor. Mechanical Engineering Department & Associate Dean (Research)
Malaviya National Institute of Technology Jaipur
Rajasthan, India

Entrepreneurship Education

Dr. Rajeev Agrawal is Fellow of The Institution of Engineer’s (IEI), India. Dr. Rajeev Agrawal received his M.E. from MNNIT, Allahabad and Doctorate from BIT, Mesra. He is presently working as an Associate Professor in MNIT, Jaipur. Dr. Rajeev Agrawal is having more than 20 years of Professional Experience. He is a Member Editorial Board in the International Journal of Business and Systems Research (IJBSR). He is actively involved in bringing industry orientation to the engineering education system in India working with several industries, statutory bodies and other R&D organizations. Demonstrating Research capabilities in terms of research papers published/presented (Including IEEE Explore Proceeding, Springer, Emerald and Science Direct and Inderscience Publishers) and currently having various sponsored and Industrial consultancy. Dr. Rajeev Agrawal currently managing a Research projects includes engaged in Autonomation, Lean Six Sigma, Supply chain Design and Reconfigurable manufacturing system (RMS). One of the objective of his current research is to address convert quickly for the production of new product by providing customized flexibility and can be improved, upgraded and reconfigured in response to fluctuating demands in automotive companies.

December 8, TUESDAY, 4:40 pm – 6:00 pm, - Room 3

Global Business Management Education II
Entrepreneurship Education

Session Chair: Dr. Sanjay Nadkarni, Emirates Academy of Hospitality Management, Dubai, UAE

4:40 – 5:00 pm (Tuesday, December 8)

Dr. Josu Takala
Professor, Industrial Management and Materials Management
University of Vaasa
Vaasa, Finland

Opportunity and Risk Evaluation of Technology and Knowledge Intensive Businesses

Prof. Dr. Josu Takala has a vast experience in both industry and academia. He worked for ABB (Strömberg): belongs to ABB (Asea Brown Boveri) Group. ABB Strömberg consists of about 30 independent Ltds in the wide business area of electr. techn., R&D is 8 % of the turnover(3000 Million USD/1995) in the divisions of R&D, Quality Assurance related tasks to automation as researcher and manager in 1979-1992. Educational background: Tampere University of Technology M.Sc (El.Eng) 1980 and Dr.Tech. (El. Eng.and business studies in the University of Vaasa) 1988 as well as Dr. HC in 2009 from the Technical University of Košice. And Dr.HC (Technology Management and Business) in Universiti Tun Hussein Onn Malaysia 2015. Currently he is Professor in Industrial Management at the University of Vaasa 1988-, Finland besides other multiple universities in Finland and abroad such as Thailand, Malaysia, China, Slovakia, Slovenia etc. His field of interest is mainly technology management in the sustainable competitive strategies of private and public organizations in manufacturing networks by utilizing the generic fields of quality management, (technology) strategy, new product development, production management, logistics and environmental management. Over 500 scientific published articles. Co-Editor, Special Issue Editor, Member of Scientific Board in Journals (like MPER, MNG), and invited or key note speaker and Chairman or Honored Chairman in international conferences.

5:00 – 5:20 pm (Tuesday, December 8)
Samuel Olutuase, PhD, MBA, B.Sc. (Hons)
Lecturer & Academic Supervisor
(CPUT-Cape Town; UFH - East London; Unijos - Jos)
University of the Western Cape
East London, Eastern Cape, South Africa

Readiness of Business Management graduates for the workforce around the world in relation to ENTREPRENEURSHIP

Samuel Olutuase holds a PhD in Management with specialisation in entrepreneurship. He is currently a member of PhD board at Department of Business Administration, University of Jos, Nigeria. He has published works in peer reviewed journal to credit. His research experience includes: socio-economic data to determine Nigeria’s poverty level for UNDP. He has also served as data analyst on various research projects: City Cape Town project (Exploring unemployed women’s economic survival in Kayelitsha); German Technical Cooperation (GTZ) and MDG projects in Plateau state. Samuel has expertise in both quantitative and qualitative research tools.

5:20 – 5:40 pm (Tuesday, December 8)

Dr. Vinayak A. Drave, Ph.D., MBA, B.Sc.
Assistant Professor of Operations and Supply Chain Management
O.P. Jindal Global University (JGU)
Sonipat, Haryana, India

Management Entrepreneurship Education

Dr. Vinayak A Drave is an assistant professor in the area of Operations and Supply Chain Management at Jindal Global Business School, O.P. Jindal Global University. He also holds the position of Visiting Researcher at the Department and Graduate Institute of Business Administration, College of Management, Chaoyang University of Technology, Taiwan.

Resolute in Technology management and Operations research, he possesses a convincing academic background with a Bachelor of Science (B.Sc.) in Mathematics followed by Master’s in Business Administration (MBA) with a dual specialization in Operations and Human resource management, UGC-NET fellow (2013) for Assistant Professorship and a doctorate degree, Ph.D. in Supply Chain and Technology Management from the Department of Industrial and Management Engineering, Indian Institute of Technology (IIT), Kanpur. He is also associated with Shiv Nadar University, Gr. Noida as Visiting faculty and has conducted simulation workshop in Institute of Management Technology (IMT), Ghaziabad as a resource person.

Vinayak, in his demonstrated six years of research span has showcased 21 of his research articles in several National/International conferences (mostly Scopus Indexed). Also, he is an author of a general management case published by Ivey Case Publishing and featured in Harvard Business Publishing. His interest in research are justified by considering a few of his recent publications in the journal of international repute like – International Journal of Information Management (CNRS-2, SCI Q1, ABDC-A*, Impact Factor 5.063), Industrial Marketing Management (CNRS-2, SCI-Q1, ABDC-A*, Impact Factor 4.779) and Information Systems Frontier (FNEGE-Rank 3, SC-Q1, ABDC-A, Impact Factor-2.539). His doctoral thesis work deals with e-commerce retailers in India, which was recognized and published as a cover story by Storai, a quarterly magazine by Retailer’s Association of India.

Apart from research and teaching, he also has interests in entrepreneurship and new venture development activities. He is a recipient of the ‘Best Creative Business Idea for a New Venture ’organized by Start-Up! Starts Now, Entrepreneurial camp in National Kaoshiung First University of Science and Technology, Taiwan (2018), fully sponsored by the Ministry of Education, Taiwan. He has also delivered a talk on ‘Engineering education in India’ at IEOM, Pilsen, Czech Republic (2019) as a distinguished speaker. He has also been awarded grants by Dean of Academic Affairs, and Dean of Resource and Alumni, IITK, for attending international conferences.

Rounding to international exposure, counties visited by him are Philippines, Thailand, Dubai, Czech Republic and Taiwan.

He offers a variety of courses in Operations, Strategy, and Information systems such as, Introduction to Operations Management, Business Mathematics and its application, Logistics Management, Total Quality Management, Service Operations, Big data analytics and application, Global Supply chain management strategy and Technology management, etc.

5:40 – 6:00 pm (Tuesday, December 8)

Dr. Sanjay Nadkarni
Director of Research & Innovation
The Emirates Academy of Hospitality Management
Dubai, UAE

Dr. Sanjay Nadkarni is the Director of Research & Innovation at the Emirates Academy of Hospitality Management. His areas of interest include digital innovation, data analytics and development studies. Sanjay’s portfolio includes academic and applied research, advisory and consultancy assignments for corporate, government and multilateral agencies in addition to his pedagogic practice which includes Visiting Professorships at Ecole hôtelière de Lausanne (Switzerland), Institute of Systems Science of the National University of Singapore (Singapore) and Faculty of International Tourism Management of the City University of Macau (China). He is passionate about leveraging open data and open source platforms for the benefit of small and micro-businesses and enjoys mentoring students in digital entrepreneurship.
6:00 – 6:20 pm (Tuesday, December 8)

Md. Amanullah Kabir  
Doctoral Fellow, Mechanical Engineering  
Lamar University, Beaumont, Texas, USA

**A Project Based Learning, Collaboration and Challenges for Engineering Students**

Md is currently doing a PhD in Mechanical Engineering from Lamar University, Texas. He earned a Master's in Mechanical Engineering from Lamar University and Bachelor's in Mechanical Engineering from Khulna University of Engineering and Technology (KUET), Bangladesh. Currently he is also working as a Mechanical Engineer at One Community Global-Los Angeles, California. He is a LEED Green Associate certified professional. Md has 5+ years of experience in Mechanical Design, modelling and analysis. As a member of the One Community team, Md is helping to complete Climate battery design and Duplicable City Center (DCC) rainwater gutter design project.

6:15 – 6:30 pm (Tuesday, December 8)

Garvin Maduku  
Department of Economics  
Bindura University of Science Education, P. Bag 1020, Bindura  
Zimbabwe

Garvin Gondai Maduku is a supply chain and logistics professional who has 6 years experience mainly in the FMCG sector. His experience spans the food industry, fertilizer manufacturing, beverages as well as finance and customs. Having been in the industry for so long, he aspires to create considerable changes in how supply chains are managed and how technology can be efficiently used for better service delivery and better Triple Bottom Line management.
IEOM Industry Solutions and Industry 4.0
DISTINGUISHED SPEAKERS

August 8, 2020, Tuesday, 4:45 – 6:15 pm
Industry Solutions I, Zoom Meeting Room 1
Session Chair: Dr. Tafadzwa Mudondo, Principal, Harare Polytechnic, Zimbabwe

4:45 – 5:00 pm (Tuesday, December 8)

Eng. Dr. Ben Rafemoyo
Chief Executive Officer
Engineering Council of Zimbabwe

Ben Rafemoyo is the CEO of the Engineering Council of Zimbabwe. He is a holder of a Bachelor of Engineering in Electrical & Electronics Degree from the University of Surrey, Guildford UK, a Higher National Diploma in Electrical Engineering, majoring in Power Systems UK, a Full Technological Certificate in Electrical Engineering [City & Guilds of London Institute], a Masters Degree in Business Administration (MBA) University of Zimbabwe, majoring in Strategic Management Techniques. Ben is a holder of Doctor of Engineering, Specialising in Electrical & Electronics (Honoris Causa) – CUB, a Post Graduate Diploma in Marketing Management (IMM) – RSA Executive and an Executive Development Program Certificate (EDP) - University of Zimbabwe.

Ben is a Fellow of the Zimbabwe Institution of Engineers, a Fellow of the Academy of Engineering And Technology For The Developing World, a Member of the Institute of Marketing Management (IMM – RSA) and a Registered Professional Engineer – Engineering Council of Zimbabwe.

Training and work experience covers cadetship with Hawker Sidley and Power Construction before working for the private sector for over 5 years. At independence, joined the then Ministry of Works before moving on to join the then Harare Municipality Electricity Department in 1982 and later on transferred to ZESA at its inception through amalgamation. Worked in various capacities for the period spanning 22 years until 2003 when appointed to the position of Managing Director for ZEDC, then a subsidiary company of ZESA Holdings (Pvt) Ltd. Appointed acting Group Chief Executive Officer for ZESA Holdings (Pvt) Ltd. from June 2006 to May 2007. Was appointed the substantive Group Chief Executive Officer for ZESA Holdings in June 2007, a position held until opting to take early retirement with effect from October 2010. Worked for over 7 years at the helm of the sole Power Utility Company, bringing the total period served in the Power Sector to over 29 years. Major areas of focus as Group CEO included the provision of strategic leadership, marshalling of resources and deployment thereof, team building and staff development, power network projects development and implementation, facilitation of regional power trading and transactions and advising Government on Power related issues.

After a short stint as freelance Energy Consultant until April 2011, was appointed the inaugural Chief Executive Officer of the then recently established Engineering Council of Zimbabwe (ECZ). A position held until to date. Main activities in the current job include regulating the Engineering Profession through registration and issuing of practicing certificates to Engineers, Technologists and Technicians, Engineering firms as well as the accreditation of Engineering programs offered by engineering faculties at colleges and tertiary institutions.

5:00 – 5:15 pm (Tuesday, December 8)

Mrs. Eriyeti Murena
Doctoral Researcher
Department of Industrial Engineering
Tshwane University of Technology, South Africa
Lecturer, National University of Science and Technology
Bulawayo, Zimbabwe

Product Design and Manufacture of Rail parts

Eriyeti Murena is currently a Doctorate researcher in the Department of Industrial Engineering at the Tshwane University of Technology, South Africa. She is focusing on the Cloud-based Process Planning for Reconfigurable Machines. She works as a Lecturer in the Department of Industrial and Manufacturing Engineering at NUST in Zimbabwe. In 2010, Eriyeti obtained a BEng in Industrial and Manufacturing Engineering from the National University of Science and Technology (NUST), Zimbabwe, followed in 2014 by MEng in Manufacturing Engineering and Operations Management. Eriyeti gained a Post Graduate Diploma in Higher Education from NUST, where she still works as a Lecturer in the Department of Industrial and Manufacturing Engineering. Eriyeti has worked with CNC machines (milling/turning) as CAD/CAM technician, and has gained experience in computer aided design (CAD), Computer Aided Manufacturing (CAM) and Engineering Drawing. She is a member of the Zimbabwe Institute of Engineer, Women in Energy in Zimbabwe and SAIIE.

5:15 – 5:30 pm (Tuesday, December 8)

Mr. Bathusi Makopo
Business Process Analyst
First National Bank of Botswana
First Place, (CBD), Gaborone, Botswana

Bathusi Makopo received his bachelor’s degree in Industrial Engineering from the University of Botswana, (Botswana). Currently, he is working as a Business Process Analyst at First National Bank of Botswana. He has worked with Botswana National Productivity Centre (BNPC) as an Entry Consultant helping to cultivate continuous improvement / productivity culture through SMMEs across the country-Botswana. His experiences spans assisting companies in manufacturing, textile and service providing entities. He is a member of Industrial Engineering and
IEOM Industry Solutions
Harare, Zimbabwe, December 7-10, 2020

Operations Management (IEOM), Society of Botswana, Botswana Institute of Engineers (BIE) and registered with Engineers Registration Board (ERB).

5:30 – 5:45 pm (Tuesday, December 8)

Tassius Chigariro
Managing Director
Old Mutual Zimbabwe
Harare, Zimbabwe

*Built to Adapt or Built to Last*

Tassius Chigariro is the Managing Director of Old Mutual Life Company Zimbabwe. Tassius is a qualified Actuary as well as a CFA Charter holder with wealth of Financial Services experience. His experience in Insurance and Investments focused on designing solutions for clients. Tassius has exposure to various economies having worked for several years in each of England, Scotland, South Africa and Zimbabwe.

5:45 – 6:00 pm (Tuesday, December 8)

Dr. Tafadzwa Mudondo, Ph.D.  FZwIE. PrEng
Principal
Harare Polytechnic
Zimbabwe

Title of Presentation: *Towards a new philosophy for Repositioning, and Repurposing Technical and Vocational Education and Training for Industrial Engineering and Operation Management Systems and Development in Africa: A case of Zimbabwe*

Dr. (Ph.D). FZwIE. PrEng. Tafadzwa Mudondo is currently the Principal of Harare Polytechnic in Zimbabwe. Harare Polytechnic has a staff compliment of about 700 members and a students’ population of about 10000. He is a holder of, Ph.D in Business Administration, specializing in Knowledge Management Systems, Executive Masters in Business Administration Degree, Bachelor of Technical Education Honours in Electrical and Electronics Engineering all from National University of Science and Technology Zimbabwe. Higher National Diploma in Computer Engineering from Xi’an Telecommunication Institute (China), Full Technological Certificate in Telecommunications Engineering, City and Guilds (UK), Class 1 Journey person in Aircraft Radio and Telecommunications Engineering done with the Air force of Zimbabwe. Tafadzwa Mudondo is a registered professional Principal Telecommunications and Avionics Engineer, Fellow of Zimbabwe Institution of Engineers. Tafadzwa Mudondo has 10 years working experience in the aircraft industry and 22 years’ experience in training and managing engineering students. An author in Building Resilient and Sustainable Competitive Practices in Organisations and has many publications of Knowledge Management Systems. Tafadzwa Mudondo has a passion for Knowledge Management Systems and Learning Organisation. Member of Society for Research into Higher Education (UK), Member and Executive Board member of Zimbabwe Institution of Engineers and Executive Board member of Commonwealth Association of Polytechnics and Technical Universities in Africa (CAPA/ATUPA), member Higher Examination Council Pre-Ratification Committee-Zimbabwe and current Chair of Polytechnics and Industrial Training Colleges Association in Zimbabwe.

Wednesday (December 9, 2020)

**Session II: Industry Solutions II**

Session Chair: Dr. Nourredine Boubekri, University of North Texas, Denton, Texas, USA

4:45 – 6:15 pm (Wednesday, December 9)

4:45 – 5:00 pm (Wednesday, December 9) / 10 am USA EST

Foad Hosseinkhanli
Director of Quality Assurance, Performance and Business Improvement
Amor Health Services, Inc.
Brownsville, Texas, USA

Certified Mater Black Belt, Certified Scrum Master, Certified Quality Assurance Engineer

*Capturing voice-of-the customer/client – A systematic approach to greater customer/client-centricity applying lean six sigma methodology*

Mr. Hosseinkhanli is Director of Quality Assurance, Performance and Business Improvement Amor Health Services, Inc. in Brownsville Texas USA. He was General Manager of Almana Trading in Doha Qatar Middle East and responsible for all aspects in creation and implementing of successful growth of new market development and turn-key operation for various products. Mr. Hosseinkhanli was involved with financial negotiation with national and international banking, corporation, private sources and trading organization. Volvo International Development Corporation, Gothenburg Sweden, Marketing Director For The Middle Eastern Countries, UAE, Saudi Arabia, Bahrain, Turkey and Iran. Negotiated and established exclusive franchise agreement and turn-key operation. Did market analysis and feasibility studies for Volvo International in the Middle Eastern countries and increase annual sales in excess of 55%. Chief Industrial Engineer, United Carr, manufacturer of plastic knobs for Automotive Industries, Knoxville Tennessee USA. His education background is: Master of Business Administration from IMMEDE Management Institute in Lausanne Switzerland majoring in financing, Bachelor of Science in Industrial and System Engineering from University of Rhode Island in Kingston Rhode Island USA. Certified Business Analyst from International Profit Association in Buffalo Grove IL USA. Certified Six Sigma Green and Black Belt from Institute of Industrial Engineers. Extra Curriculum Activity: Senior Member of Institute of Industrial Engineers, Senior Member of ASQ and Senior Member of Swedish Method and Time Measurement Language: Fluent in English, Swedish, German, Turkish, Farsi and some Spanish.

5:00 – 5:15 pm (Wednesday, December 9)

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Eng. ISRAEL RWODZI Pr.(Eng.)  
BSc Eng. (Hons) Civil, (FZweIE) UZ, MBA (ESAMI), Dip Pr.Mgnt.(BCE, London), Dip. Comp. Aided Design (BCE, London);  
Chairman, Engineering Council of Zimbabwe (ECZ)  

Immediate Past President, Zimbabwe Institution of Engineers (ZIE)  
Approved Civil Engineer for Large Dams  
Immediate Past Chairman of Zimbabwe Commission of Large Dams (ZIMCOLD) & Large Dams Division (ZLD)  
Secretary of Zimbabwe Dam Safety Advisory Panel  
Independent Civil and Water Consultant  

Graduated from the University of Zimbabwe, BSc Engineering Honours Degree in Civil Engineering in 1990 after being on Cadetship from 1987 in the Department of Water Development (DWD) which was under the then Ministry Energy and Water Development. Progressed through the water sector as a Graduate Engineer, then through the preceding stages of being a Designs Engineer, Chief Designs Engineer, Principal Designs Engineer. In 2000 was appointed Chief Designs Engineer, Zimbabwe National Water Authority (ZINWA), a water development and management parastatal. Later was the Catchment Manager, Director of various divisions viz. Water Supplies, Maintenance & Engineering Services, Operations, Special Projects, Operations & Special Projects and Water Supplies Operations in that order up to 2016. Then assumed the position of Managing Consultant of Isrom Consulting Engineers (Pvt) Ltd. specializing in Water & Water Related infrastructure development. Zambezi River Authority (ZRA) Independent Non-Executive Director and Council Member of Chinhoyi University of Technology (CUT). Has actively participated in Dam Development in Zimbabwe as a Design Engineer, Project Engineer and Engineer. Involved in more than 30 large dams in Zimbabwe including Tokwe Mukorsi, the proposed Batoka Hydropower project and various water supply and irrigation projects.

5:15 – 5:30 pm (Wednesday, December 9)

Dr. Philimon Chitagu  
Human Resources and Administration Director at Schweppes Zimbabwe Ltd  
MGSCC Trained Executive and Team Coach  
President, Institute Of People Management of Zimbabwe IPMZ  
Zimbabwe  

Re-Imagining Human Capital for Effective Industrialisation in Disruptive Age  

Dr. Philimon Chitagu is a Human Resources and Administration Director at Schweppes Zimbabwe Ltd. He is a MGSCC Trained Executive and Team Coach. Dr. Chitagu is serving as a President of Institute of People Management of Zimbabwe IPMZ. He is a Gallup Certified Coach and Global Coach. Dr. Chitagu has published 46 articles related on HR. He is a speaker for national and international events. Dr. Chitagu is a Global HR Mind and Thinker (World HRD Congress). He is a PhD Finalist (Submitted)-Doctoral Thesis topic “Transformative Leadership through Bonding Culture”-Da Vinci Institute of Technology, South Africa. He is a holder of Doctor of Business Administration (DBA). Dr. Chitagu has 26 years HR experiences. Dr Chitagu sits on the following boards-Zimbabwe Prison and Correctional Services; Suryadatta Group of Universities (India); World HRD Congress, Tripartite Labour Law Advisory Council (Ministry of Labour), Labour Committee-Employers Confederation of Zimbabwe (EMCOZ) and Africa HR Board of Directors.

5:30 – 5:45 pm (Wednesday, December 9)

Douglas Mboweni, Ph.D.  
Group Chief Executive Officer  
Econet Wireless Zimbabwe Limited  
Harare, Zimbabwe  

Douglas Mboweni is the CEO of Econet Wireless Zimbabwe Limited, the country’s leading provider of telecoms services and has over 20 years of senior management experience in the Information Technology and Telecommunications industry. Under his stewardship, Econet Wireless Zimbabwe used innovation in the face of difficult economic conditions to grow its subscriber base from 200,000 in 2002 to over eleven million today, a commanding market share of above 65%. Dr Mboweni was instrumental in the promotion of local mobile financial services through EcoCash, up to the unbundling and listing of its parent company, Cassava SmarTech on the Zimbabwe Stock Exchange as well as the set up of Mascom (Botswana) and Econet Wireless Nigeria. Dr. Mboweni graduated with a Doctor of Philosophy (PhD) Degree in Business Leadership from the Zimbabwe Open University (ZOU) in 2019. In his doctorate thesis, he proposed the Leadership-Driven Resilience Model (LDRM), which theoretically proffered possibilities for business leaders to develop sustainable coping strategies in response to extreme business operating environments. Dr. Mboweni is also a visiting Professor of Practice at the University of Johannesburg since 2018 and is a holder of a Masters in Business Leadership (UNISA), and a BSc Mathematics and Computer Science degree from the University of Zimbabwe (UZ). In recognition of his leadership and his success, Dr. Mboweni has won several national and international accolades. He continues to show leadership through a number of youth mentorship programmes in the community and is an opinion leader on telecommunications and technology in Zimbabwe and abroad. Dr. Mboweni is married to Sarudzayi and they are blessed with 3 children.
Heriot Watt University in Economics and Organisational Behaviour.
Electrical Engineering from the University of Zimbabwe with particular focus in Electronics and Power Systems. He holds MBA certificates from approved by the United Nations Framework Convention on Climate Change (UNFCCC). Francis Masawi is a holder of an Honours Degree in The New Way thinking and analysis of the energy performance of electrical power systems is based on an energy losses reduction methodology and growth, from points of origin to the points of utilisation to meet the requirements of users, also known as Energy and Information Logistics (EiL).

thinking, nurtures leadership and embraces the flow of energy and information, the most critical ingredients for social and economic development economic stagnation and low levels of energy access on the African continent. He is now working on a New Way of thinking that promotes critical focuses on self-interests, is the root cause of the extreme poverty and hunger, poor health and education and learning, environmental degradation, economic stagnation and low levels of energy access on the African continent. He is now working on a New Way of thinking that promotes critical thinking, nurtures leadership and embraces the flow of energy and information, the most critical ingredients for social and economic development and growth, from points of origin to the points of utilisation to meet the requirements of users, also known as Energy and Information Logistics (EiL). The New Way thinking and analysis of the energy performance of electrical power systems is based on an energy losses reduction methodology approved by the United Nations Framework Convention on Climate Change (UNFCCC). Francis Masawi is a holder of an Honours Degree in Electrical Engineering from the University of Zimbabwe with particular focus in Electronics and Power Systems. He holds MBA certificates from Heriot Watt University in Economics and Organisational Behaviour.

Dr. Ephraim Kudzaishe Havazvidi is a Knowledge Management and Guidance Services provider in information access for energy demand, supply, access, conversion and trading which can be Project / Program Management (PM) activities, developmental interventions or business operations whose short-term outputs are energy reliability, security and affordability. The outputs of the PM activities are inputs into a Results Based Management (RBM) system whose medium-term outcomes are sustainable social and economic development and growth and long-term impacts are improvement in Quality of Life. Francis acquired knowledge and experience in electrical power systems in eastern and southern African countries over a period of four decades. He has concluded that the Old Way of thinking, which focuses on self-interests, is the root cause of the extreme poverty and hunger, poor health and education and learning, environmental degradation, economic stagnation and low levels of energy access on the African continent. He is now working on a New Way of thinking that promotes critical thinking, nurtures leadership and embraces the flow of energy and information, the most critical ingredients for social and economic development and growth, from points of origin to the points of utilisation to meet the requirements of users, also known as Energy and Information Logistics (EiL). The New Way thinking and analysis of the energy performance of electrical power systems is based on an energy losses reduction methodology approved by the United Nations Framework Convention on Climate Change (UNFCCC). Francis Masawi is a holder of an Honours Degree in Electrical Engineering from the University of Zimbabwe with particular focus in Electronics and Power Systems. He holds MBA certificates from Heriot Watt University in Economics and Organisational Behaviour.

Thursday (December 10, 2020)
Session III: Industry Solutions III
Session Chair: Dr. Ephraim Havazvidi, Group Research Manager, Seedco, Zimbabwe
12:00 – 1:30 (Thursday, December 10)

Francis Masawi
Independent Energy Expert
Managing Director, Energy and Information Logistics Group Limited (EiL)
Harare, Zimbabwe

Francis Masawi is a Knowledge Management and Guidance Services provider in information access for energy demand, supply, access, conversion and trading which can be Project / Program Management (PM) activities, developmental interventions or business operations whose short-term outputs are energy reliability, security and affordability. The outputs of the PM activities are inputs into a Results Based Management (RBM) system whose medium-term outcomes are sustainable social and economic development and growth and long-term impacts are improvement in Quality of Life. Francis acquired knowledge and experience in electrical power systems in eastern and southern African countries over a period of four decades. He has concluded that the Old Way of thinking, which focuses on self-interests, is the root cause of the extreme poverty and hunger, poor health and education and learning, environmental degradation, economic stagnation and low levels of energy access on the African continent. He is now working on a New Way of thinking that promotes critical thinking, nurtures leadership and embraces the flow of energy and information, the most critical ingredients for social and economic development and growth, from points of origin to the points of utilisation to meet the requirements of users, also known as Energy and Information Logistics (EiL). The New Way thinking and analysis of the energy performance of electrical power systems is based on an energy losses reduction methodology approved by the United Nations Framework Convention on Climate Change (UNFCCC). Francis Masawi is a holder of an Honours Degree in Electrical Engineering from the University of Zimbabwe with particular focus in Electronics and Power Systems. He holds MBA certificates from Heriot Watt University in Economics and Organisational Behaviour.

Dr. Ephraim Kudzaishe Havazvidi
Group Research Manager
Seedco
Zimbabwe

Senior Group Research Consultant in retirement. Former Group Head of Research and Development of SeedCo Group, a leading Pan African Seed Organisation in Sub Saharan Africa, during the decade 2005-2015. Dr Ephrame Havazvidi is a Legendary Wheat Breeder and Seed Production Technology Research Pioneer and Specialist in Seed Co Group. He is a Plant Breeding Strategist under climate change induced stress scenarios. Dr Ephrame Havazvidi is a member of the Wheat –Independent Steering Committee of CGIAR CIMMYT with Head Quarters in Mexico. He represents Sub Saharan Africa in this position.

Dr Ephrame Havazvidi showed astute leadership in directing the Research and Development Function of Seed Co Group by recruiting, mentoring and training a coherent Team of Crop Breeders who operated at top level of competence across Sub Saharan Africa. Dr Ephrame Havazvidi and his Plant Breeding Team crafted and implemented highly effective crop breeding and variety testing strategies towards release of top performing maize, wheat and soyabean varieties which are widely adapted across Africa including some overseas productions niches such as India, Pakistan and Brazil. These crop varieties are GMO free, climate change resilient and carry big jumps in genetic grains in Farmers’ fields, much to the benefit of end users in the climate change stress sensitive Sub Saharan African Region.

Dr Ephrame Kudzaishe Havazvidi was awarded “The Wheat Legend “ Title by the Zimbabwe Wheat Board (ZWB) in 2018 and previously also received the “Alan Pilditch Shield” in 2001 for outstanding contribution to the Wheat Value Chains In Southern African Regional countries; Zimbabwe, Zambia, Malawi and Mozambique. These varieties have shown promise in Madagascar as well. He released (30) thirty top performing wheat
varieties, most of which possess pre-harvest sprouting tolerance with some carrying very strong gluten protein fractions useful in gristing utilities, thereby relieving costly importation of overseas hard red wheat grain for this purpose.

Dr Ephrame Havazvidi is Pioneer in the Research field specifically concerned with improvement of physical and genetic purity plus quality of seed produced by Seed Producers of hybrid maize seed, in particular: In his Seed Production Technology Research, he ascertained pertinent factors which influence effectiveness of Time Isolation and Distance Isolation in the prevention of genetic contamination in hybrid maize seed as caused by neighbouring foreign pollen sources. Dr Havazvidi also established optimum female: male planting ratios and planting patterns in combination with optimum plant densities in the parents. Dr Havazvidi derived recommendations of tolerances of rogue plants and undetasseled female plants in hybrid maize seed production fields in the same research programme. He has recently developed maize inbreds which confer extreme heat and drought stress tolerance coupled with Nitrogen Use Efficiency (NUE), while combining well for wide adaptation and high grain yield expression.

12:40 – 1:00 pm (Thursday, December 10)

**Professor Innocent Chirisa**
Dean of the Faculty of Social and Behavioural Sciences
Professor in the Department of Demography
University of Zimbabwe
Harare, Zimbabwe

**ID 371: Social Sciences, Services and Industrialisation in Zimbabwe: Shaping the Debate and Practice**

Innocent Chirisa is a Professor in the Department of Demography Settlement and Development at the University of Zimbabwe. Currently, he is the Dean of the Faculty of Social and Behavioural Sciences at the same University. He is also a Research Fellow with the University of the Free State, South Africa in the Department of Urban and Regional Planning. His research interests include social and political theory, environment stewardship and planning, urban governments and urban and regional resilience.

1:00 – 1:20 pm (Thursday, December 10)

**Nqobile Munzara**
Executive Assistant to Group CEO
Financial Securities Exchange
Harare, Zimbabwe

**The rise and rise of Financial Technology: Lessons for Industrial Engineering**

Nqobile is a Legal Practitioner, Conveyancer and Notary Public who is registered with the High Court of Zimbabwe. She holds a Law Degree from the University of Cape Town, and an MBA from the University of Gloucestershire. She is the Executive Assistant to the Group CEO of Escrow Group, a FinTech Company that has operations in the capital markets in Zimbabwe, Zambia and Kenya through Corpsure Registrars, Financial Securities Exchange (FINSEC) and Escrow Systems. Nqobile began her career in 2007 as a legal practitioner in private practice in Bulawayo, and has worked in Government, Media and the financial services sector in Managerial and Executive roles. She held various positions in the Legal Committee of the Bankers Association of Zimbabwe and as a result she has contributed to legal reforms impacting the Zimbabwean financial services sector, thereby establishing herself as an authoritative Corporate Lawyer.

Nqobile is the Chairman of the Association of Corporate Counsel and Governance Officers, a member of the Women in Law Connect Executive Committee and Secretary of the Business Fighting COVID-19 Trust. She is also an HIV/AIDS Activist with a focus on Life Skills development, Behaviour Change training and Mentorship for young people from the age of 13. She does her work through Culture Shock Trust, an NGO she founded in 2008. She is the author of a high school textbook and a Teachers’ Guide, approved by the Zimbabwean Ministry of Education for the Guidance and Counselling subject, titled “What's MY Risk?” A Life Skills Guide for teenagers on sex, sexuality, HIV/AIDS, suicide, drugs and other social challenges. Nqobile is married and has 2 beautiful children.
## Corporate Membership Categories

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### Powering Engine and Drivetrain Solutions

![Image of a cityscape with a road network]

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Indian Institute of Industrial Engineering (IIIE)
International Federation of Engineering Education Societies (IFEES)
Pakistan Society of Industrial Engineers (PSIE)
Robofest
Society of Cost and Quality Engineers (SCQE)
Panels

December 7, 2020 (Monday) - Session: 6:00 – 7:30 pm – Room 1

Industry 4.0 Panel Session

Panel Chair:
Dr. William Msekiwa Goriwondo
Dean
Faculty of Engineering
National University of Science and Technology
Bulawayo, Zimbabwe

A registered Professional Engineer with an MSc. degree in Manufacturing Systems & Operations Management as well as a Doctor of Philosophy (PhD) degree. Proven track record of technical, operational and strategic leadership, spanning over 20 years in Industry and Academia. Currently the Executive Dean of the Faculty of Engineering at the National University of Science and Technology (NUST), a Senior Lecturer, Researcher and an Engineering & Operations Management Consultant. He is a member of the Institute of Directors Zimbabwe (IoDZ), Fellow and Board member of the Zimbabwe Institution of Engineers (ZIE). Dr Goriwondo has won several Awards that include the ZIE’s Stevens Award (2019) for his work on training engineering practitioners on Project Management principles using computer software. He has also won the Global Engineering Education Award by the Industrial Engineering and Operations Management (IEOM) Society. An experienced Project Manager and team player with advanced strategic planning skills. Dr Goriwondo is a published researcher with over 25 peer reviewed journal papers and conference proceedings as well as several other technical newspaper articles. He is a passionate leader in engineering education, manufacturing excellence, resource utilisation and World Class Manufacturing (WCM). Prior to joining NUST in 2006, he held several engineering and management positions at BP and Shell Marketing Services as well as being Production Manager at Turnall Fibre Cement. Dr Goriwondo has been involved with many collaborative projects with national, regional and international partners. He has been engaged as an external examiner for postgraduate projects at the University of Johannesburg (UJ), Tswane University of Technology (TUT) as well as Chinhoyi University of Technology (CUT).

Panel Speakers

Ahad Ali, Ph.D.
Associate Professor and Director of Industrial Engineering
Director, Smart Manufacturing and Lean Systems Research Group
Coordinator, Siemens Electro-Matic Industrial Engineering Lab
A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering
Lawrence Technological University
Southfield, Michigan, MI 48075, USA
Executive Director – IEOM Society International

Ahad Ali is an Associate Professor and Director of Industrial Engineering Program and Director of Smart Manufacturing and Lean Systems Research Group, A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering at the Lawrence Technological University, Southfield, Michigan, USA. He earned B.S. in Mechanical Engineering from Khulna University of Engineering and Technology, Bangladesh, Masters in Systems and Engineering Management from Nanyang Technological University, Singapore and Ph.D. in Industrial Engineering from University of Wisconsin-Milwaukee. Dr. Ali was Assistant Professor in Industrial Engineering at the University of Puerto Rico - Mayaguez, Visiting Assistant Professor in Mechanical, Industrial and Manufacturing Engineering at the University of Toledo and Lecturer in Mechanical Engineering at the Bangladesh Institute of Technology, Khulna. He received an Outstanding Professor Award of the Industrial Engineering Department, University of Puerto Rico -Mayaguez, (2006-2007). He has published 50 journal and 121 conference papers. Dr Ali has conducted research projects with Chrysler, Ford, DETE Energy, New Center Stamping, Whelan Co., Delphi Automotive System, GE Medical Systems, Harley-Davidson Motor Company, International Truck and Engine Corporation (ITEC), National/Panasonic Electronics, and Rockwell Automation. His research interests include manufacturing systems modeling, simulation and optimization, intelligent scheduling and planning, artificial intelligence, predictive maintenance, e-manufacturing, and lean manufacturing. He has successfully advised seven doctoral students. Dr. Ali has involved with many international conference committees. He is serving as an Executive Director of IEOM Society International and Conference Co-Chair of the International Conference on Industrial Engineering and Operations Management and hold events in Dhaka, Kuala Lumpur, Istanbul, Bali, Dubai, Orlando, Detroit, Rabat, UK, Bogota, Paris, Washington, DC, Pretoria, Bangkok, Pilsen, Toronto, Costa Rica, Sao Paulo and Riyadh. Dr. Ali has visited 20 countries for professional events. He is a member of IEOM, INFORMS, SME and IEEE.

December 8, 2020 (Tuesday) - Session: 8:15 pm – 9:30 pm - Room 2

Global Engineering Education Panel Session

Panel Chair: Dr. Wilson R. Nyemba, Department of Mechanical Engineering, University of Zimbabwe

Panel Speakers
Panel Chair

Dr. Eng. Loice K Gudukeya
Senior Lecturer
Mechanical Engineering Department
University of Zimbabwe

Loice is a Senior Lecturer in the Mechanical Engineering Department at the University of Zimbabwe. She has previously held the post of Assistant Lecturer in the same department at University of Zimbabwe and at the Harare Institute of Technology, in the Industrial Engineering Department. She is a holder of a PhD in Engineering, University of Johannesburg (2018), MSc in Renewable Energy, University of Zimbabwe (2012), BHon in Engineering: Industrial and Manufacturing, NUST (Bulawayo, 2004). Her PhD research title was: “Towards Green Manufacturing: Improving Environmental Sustainability in The Zimbabwean Steel Industry”.

Professionally Loice is a corporate member of the Zimbabwe Institute of Engineers. Under the same board she is a member of the National Student Award and the Congress Planning Committees. She is also registered with the ECZ. She also in different committees in the department and faculty and has published a number of journal and conference papers. Her research areas are Environmental Sustainability and Cleaner production. Loice is passionate about promoting Science and Engineering to young girls in primary and high school. The hope is to invite them to the Engineering world and to make them stay in the field. She is currently chairing University of Zimbabwe Women in Engineering, which falls under the Zimbabwe Institution of Engineers. Women in Engineering. The mandate is having a community of Women in Science at the university that holds different events that promote higher numbers of females in the field.

Panel Speakers

Dr. Fortunate Farirai, PhD (Pr. Eng.)
Chief Executive Officer
Sustenergy Zimbabwe

Fortunate is an experienced engineering professional in the field of renewable energy. She holds a PhD in Chemical Engineering from the University of the Witwatersrand, Johannesburg, South Africa (Wits) and is a registered professional engineer with the Engineering Council of Zimbabwe. Before the PhD, she received an MSc in Renewable Energy from the University of Zimbabwe (UZ) and a BSc (Hon) in Chemical Technology from the Midlands State University, both in Zimbabwe.

From 2012 to date, Fortunate has contributed to various R&D projects within Southern Africa and regularly interfaces with the international energy community. The majority of this work was done in her capacity as a Senior Research Engineer at the Energy Technology Institute of the Scientific and Industrial Research and Development Centre (SIRDC) in Zimbabwe. In collaboration with members of her network at Wits, UZ and other industry partners she has published various research articles in high-impact factor international journals and also presented at various technical conferences in Europe and Africa. She has also co-authored a book chapter. Even today, her research momentum remains as evidenced by the many articles she continues to publish.

Unique to her, despite the demanding professional and academic life, she is a proud and dedicated wife and mother to 3 energetic boys. She happily claims that her family is the greatest source of support and strength in her work. Due to her strong pioneering spirit, Fortunate is also an active entrepreneur. In 2015, she co-founded and is currently a director of Wise Petroleum, a company involved in fuel handling and distribution and which also owns a few fuel stations in Zimbabwe. Also, in 2020, she founded and is the current chief executive officer of Sustenergy Zimbabwe, a company dedicated to a cause that is very close to her heart, renewable energy.

Lastly, Fortunate is highly passionate about the holistic growth of her community and thus dedicates a significant portion of her time to national and voluntary service. Currently, she is the H2Atlas Project Team Leader for Zimbabwe, an initiative by SASSCAL to determine the green hydrogen potential of Southern Africa which is very critical considering the importance of the resource in future energy scenarios. Also, she is the incumbent Chairperson of the Organisation for Women in Science for the Developing World, Zimbabwe Chapter. The work brings her much joy as she gets to help empower women in related career fields, assist in strengthening their professional network and facilitate activities that augment their competitiveness in the modern workplace.

Dr. Bupe Getrude Mwanza
Associate Director, Graduate School of Business
University of Zambia

Dr. Bupe Getrude Mwanza has over 9 years of experience in the Higher Education Sector. She has practical experience in teaching and learning, academic administration and research, and quality assurance in the Higher Education Sector. Bupe has teaching and learning experience in Zambia, Zimbabwe and South Africa. She has experience in Quality Assurance in the Manufacturing Sector. She worked for Best Oil Products and Konkola Copper Mines were she was designated in the Quality Assurance Departments. Bupe has a Bachelor of Science in Production Management, Master of Engineering in Manufacturing Systems and Operations Management and PhD in Engineering Management.

Bupe has published and presented a number of papers on Waste Management, Operations Management, Manufacturing Systems and Engineering Management. She has presented in countries such as Zambia, Zimbabwe, South Africa, Ghana, Colombia, Singapore, Malaysia, Indonesia, Macao, Thailand and India. She has contributed to the Research Output of the University of Johannesburg, University of Zambia, Copperbelt University,
IEOM Panel Sessions
Harare, Zimbabwe, December 7-10, 2020

Cavendish University Zambia and Harare Institute of Technology. Because of her passion in research, Bupe has won best paper awards in Zambia, Zimbabwe, South Africa and Malaysia.

Bupe is a mentor to a number of young ladies. Her profile has been used to mentor young ladies pursuing their careers in Science, Technology, Engineering and Mathematics (STEM) programmes. Bupe is the Chairperson of the Industrial Engineering and Operations Management Chapter in Zambia. She is also a Visiting Senior Research Associate at the University of Johannesburg. She is permanently employed by the University of Zambia, where she serves as the Associate Director and Senior Lecturer in the Graduate School of Business.

Glory Oguegbu
Founder
Glow Initiative for Economic Empowerment
Nigeria

Glory’s goal is to be a positive part of people’s lives and make good impact. She’s passionate about the economic development of Nigeria and work in the field of renewable energy and environmental sustainability to promote Nigeria’s economic growth through job creation and education. She’s the founder of Glow Initiative for Economic Empowerment under which their environmental arm - Climate Smart Nigeria - is promoting Climate Change Education in Nigerian institutions and provide capacity building on renewable energy technologies. Noticing an increase in investments into Africa’s renewable energy sector, she established the Renewable Energy Technology Training Institute (RETTI) to train the next generation of efficient installers and entrepreneurs who will serve as a competent workforce pool for the renewable energy industry and provide solutions to Nigeria’s prevalent energy problems as entrepreneurs.

In eighteen months, RETTI has trained 137 individuals including women who then receive after training support to enable them set up own businesses. 25 alumni have been recruited in solar jobs. To ensure that trainees hone their acquired skill, RETTI launched the Growth Support Plan (GSP) - an after-support platform for the alumni at no extra cost. Thirty-five members of the alumni have started their own viable renewable energy businesses and have employed 70 new employees. They have collectively provided more than 5000 KVA of renewable electricity to over 1053 homes and businesses and offset 60,000T of CO2. Under her leadership, RETTI created a tech platform – REEN Connect (Renewableenergy Engineers and Entrepreneurs Connect) to provide mentorship, business advisory, webinars, hands-on installation engagement for budding renewable energy entrepreneurs. At this time, REEN Connect has membership strength of 400 solar engineers and entrepreneurs.

In April 2019, Glory was selected and sponsored by the US Mission to the African Union (USAU) as one of fifteen African female business leaders to speak during the United States Government’s launch of the OPIC 2X Africa and meet with advisor to President of USA - Ms. Ivanka Trump and the Ethiopian President - Ms Sahle-Work Zewde. In June 2019, she received a sponsored invitation by the IEA and USAU to contribute during the IEA and African Union Ministerial on the future of Africa’s Energy. In August 2019, she received a special invitation from the IEA to contribute to the World Energy Outlook Special Report – The Africa Energy Outlook. In December 2019, she received a sponsored invitation to Paris by the IEA to contribute during the roundtable ministerial on Energy for a Continent of 2 Billion. In November 2019, She was nominated as one of four high achieving youths by the Nigerian Government to participate as a delegate in the United Nations COP 25 in Spain. Glory recently received the Lights on Women Global award by the Florence School of Regulation as one of four women doing outstanding work in the energy sector. The award offered her a scholarship to study a Master Level Course - Electric Vehicles.

Glory has authored four books to promote climate change and renewable energy literacy for children in primary and secondary schools and tertiary institutions - (Bit.ly/rettiM) and sold 2000 copies. She is the recipient of the following awards; (a) Nigerian Star from the US Mission in Nigeria (2019), (b) The Nigerian Energy Champion Prize,(2015), (c) Mandela Washington Fellowship Award (2015), (d) The Young Energy Professional of the Year Award by Nigeria Energy Awards (2018), (e) A Foremost Woman in Renewable Energy award recipient (2017) Leader &Mentor Award by US Consular General (2017) Enel Foundation Recognition as outstanding Young African in Energy (2020). In the course of her work she has met with the following global leaders; President Barack Obama, US Senator Chris Coons, Ms Ivanka Trump, US Undersecretary for Energy - Mr Mark Menezes, Ethiopian President – Ms Sahle-Work Zewde.

Dr. Olawumi O. Sadare
Post-doctoral researcher
Department of Chemical Engineering
University of Pretoria
South Africa

Olawumi is a Post-doctoral Researcher in the Department of Chemical Engineering, at The University of Pretoria, South Africa. She holds a PhD in Chemical Engineering from The University of the Witwatersrand, South Africa. She is a registered member of South African Institution of Chemical Engineers (SAiChe) and member of Institute of Chemical Engineers, United Kingdom (IChemE).

She has wide-ranging interests in Chemical Engineering with a strong bias in Nanotechnology (carbon nanotubes, membrane materials and applications), Environment Engineering and Biochemical/Bioprocess engineering. This is reflected in the excellent co-supervision of students and quantity and quality of her research outputs over the years. She has published in some leading international peer-reviewed journals in Chemical Engineering and Applied Sciences. She has attended several national and international scientific conferences and has also contributed tremendously to the understanding in the field of Nanotechnology (carbon nanotubes, membrane materials and applications), Environment Engineering and Biochemical/Bioprocess Engineering through her writings, seminars/workshops and conference presentations. It is noteworthy to mention that Wumi was one of the recipients of the famous L’Oreal-UNESCO for Women in Science, Sub-Saharan African Fellowship in 2017, attesting to her promising research capacity and leadership in Chemical Engineering.

Olawumi has demonstrated her promising leadership and supervision skills in the field through co-supervision of undergraduate and postgraduate students as well as mentoring of students.
**WEZI NYIMBILI, MSC (PEIZ, MRAes)**  
Lecturer and coordinator  
Aeronautical engineering program  
Copperbelt University  
Kitwe, Zambia  

Wezi Nyimbili is an Aerospace Engineer specialised in aircraft design and aircraft structures. She holds a B Eng Aerospace Engineering and an MSc Aerospace Engineering from Samara State Aerospace University (SSAU, Russia). She is a Professional registered engineer with the Engineering Institute of Zambia (EIZ) and a member of the Royal Aeronautical Society (RAeS).

Wezi is currently lecturing at the Copperbelt University and coordinates the aeronautical engineering program at the university. She is also a coordinator of Education Technology at the Copperbelt University’s Centre for Academic Development, a role that promotes the use of technology for effective teaching and learning at the university.

In collaboration with her network and members of other universities in Zambia, Wezi has been able to publish and present conference papers. Her research areas are Aerodynamics, aircraft structures and Engineering education.

Wezi is passionate about narrowing the gap between male and females in Science and Engineering starting with young girls at primary and tertiary level. The aim is to introduce them to STEM, mentor them and later develop careers in STEM. Wezi is currently an active member of Zambia Women in Engineering Section (ZWES), which falls under the Engineering Institution of Zambia. She is also the chairperson of the Organisation for Women in Science for the Developing World Zambia Chapter. Wezi enjoys her work as it gives her a satisfaction of empowering women and girls in the field and it also gives her an opportunity to learn from other women through professional networking.

**ENG. IRENE MASITHA**  
PhD Student  
University of Pretoria  
South Africa  

MSc in Chemical Engineering (Wits 2020), PGD in petroleum engineering(Wits 2018)  
PGDE (National University of Lesotho - NUL 2015), BSc in Chemistry and Biology (NUL 2008)

Former Deputy principal at Adventville High School in Lesotho. Following her 2 years’ tenure with the National University of Lesotho as a Laboratory Instructor in the Department of Science and Technology, Irene’s research work is based on clean fuel and nanotechnology. She is a versatile and talented professional; a mother of 2, with a passion to work with high school teen agers both boys and girls. With a long road still ahead of her career, Irene is already making a mark in the world of the Science and Technology; part of Lesotho Science and Technology Association who has been nominated as a judge in the Science and Technology fairs in Lesotho. She is committed to the advancing of knowledge and socio-economic development in Africa, and aspires to motivate women of all ages to become part of the engineering world.

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**Diversity and Inclusion Panel Session**  
Sponsored by Ford Motor Company  
December 10, 2020 (Thursday) - Room 1  
6:30 pm – 8:00 pm (Zimbabwe Time) / 11:30 am - 1:00 pm (USA Eastern Time)

**Panel Chair**

**Dr. Wilkistar Otieno**  
Associate Professor and Chair  
Industrial and Manufacturing Engineering  
Faculty Mentor of Preparing Engineers and Computer Scientist NSF-STEM Scholarship PI. & WiscAMP  
University of Wisconsin-Milwaukee  
Milwaukee, WI, USA  

Wilkistar Otieno is an Associate Professor and Chair of Industrial and Manufacturing Engineering at the University of Wisconsin-Milwaukee. She holds a Doctoral degree in Industrial Engineering and Masters in Statistics degree both from the University of South Florida. She earned a Bachelor’s degree in Mechanical and Production Engineering from, Moi University in Eldoret, Kenya. Her research interests include sustainable manufacturing (remanufacturing), sustainable energy (solar power generation systems performance analysis), sustainable water systems reliability and overall systems optimization. She is has interests in Science Technology Engineering and Math education, particularly for female and underrepresented minority students. She is a member of IIE, IEEE, INFORMS, SWE and QSR.

**Panel Speakers**
Mrs. Barbara Nhemachena
Quality Promotion and Development Officer
Zimbabwe Council for Higher Education
PhD Candidate Rhodes University, South Africa
Past, Lecturer Faculty of Engineering, Chinhoyi University of Technology, Zimbabwe

Barbara Muyengwa
Head of Marketing and Public Relations
Zimbabwe Women’s Microfinance Bank

Barbara Muyengwa is a qualified Banker and a seasoned Marketer with over 15 years in management position within the Financial Industry. She began her career with ZB Bank 1990 and worked for ZB Finance and Trust Bank. She has a proven record in the Strategic Marketing Planning, Business Development, Selling and Sales Management, Customer Relationship Management Private Banking and Quality Service Training. She is a holder of Bachelors Administration Degree in Marketing, Diploma in Marketing London Chamber of Commerce Industry, Institute of Bankers (Zimbabwe) Diploma in Banking, and completed a Masters of Business Administration Degree with Management college of South Africa. Prior to re-joining Trust Bank, she was appointed General Manager at Julie Whyte a clothing manufacturer where she contributed immensely to fashion trends. She has immense passion for women empowerment and was instrumental at the setting up of Zimbabwe Women’s Microfinance Bank. She is a member of the Institute of Directors Zimbabwe.

Pamela R. McCauley, Ph.D., CPE
Associate Dean for Academic Programs, Diversity, Equity and Inclusion
Professor | Department of Textile and Apparel, Technology and Management (TATM)
Wilson College of Textiles
NC State University

Ms. Sebonkile Thaba
Lecturer in Transport and Supply Chain Management
University of Johannesburg
Johannesburg, Gauteng, South Africa

She is currently a lecturer at the University of Johannesburg, holding Masters of Technology Degree in Operations Management. Ms Thaba serves at the Department of Transport and Supply Chain Management, lecturing 3rd-year students on Purchasing and 4th-year students on Logistics Processes and Practices. Ms Thaba’s research area are enterprise development, Sustainable Supply Chain Management and Cooperatives. She has so far published one book-chapter and 25 peer-reviewed international conferences papers. She has 25 Google Scholar citations with two h-index, and 1 110- Index. She is awarded Academic Doctorate Advancement Project towards Transformation (ADAPTT) Scholarship, which is the collaboration of University of Florida (USA) and South Africa Higher Education (SA-HE) Network (UJ). Sebonkile received three global prestige’s awards from Industrial Engineering and Operations Management (IEOM)-International Society, Best Track Paper Award, Outstanding Service Award and Teaching & Learning Award in Supply Chain Management. She is a Track Chair for Waste Management and Supply Chain Management, Annual International Conference on Industrial Engineering and Operations Management.

Ms Thaba currently is working on two projects, on Enterprise Development, which is Sustainable Supply Chain Management on Agricultural Farming Industry and Social Value Chain Economy within Local Community Enterprises. She currently a PhD candidate at University of Johannesburg, with a proposed title: Deconstructing the Social in Sustainable Supply Chain Management for African Farmers.
Professor Donald M. Reimer
Director of Membership and Chapter Development – IEOM Society
President, The Small Business Strategy Group, Detroit, Michigan, USA
Adjunct Faculty – A. Leon Linton Department of Mechanical Engineering
Lawrence Technological University, Southfield, Michigan, USA

Donald M. Reimer is an adjunct faculty at the A. Leon Linton Department of Mechanical Engineering in College of Engineering at Lawrence Tech in Southfield, Michigan. He coordinates the Certificate of Entrepreneurial Engineering Skills. Mr. Reimer holds a Bachelor of Science degree in Industrial Management from Lawrence Technological University and a Master of Arts degree in Political Science from University of Detroit/Mercy. He is a Certified Management Consultant with over 35 years of experience in working with closely-held businesses. He has taught courses in entrepreneurship, strategic management, corporate entrepreneurship and innovation for engineers. Mr. Reimer is a member of the Lawrence Tech Kern Campus Committee, Coordinator of the Lawrence Tech Innovation Encounter. He is faculty Advisor of the Collegiate Entrepreneurs’ Organization. Mr. Reimer serves as a Kern Fellow of The Kern Family Foundation, Co-Direct of the Coleman Fellows Program, member of the National Collegiate Entrepreneurs’ Organization Faculty Advisory Council and is a member of the American Society of Engineering Education. He has operated his own consulting company – The Small Business Strategy Group for 23 years. He published numerous articles on small business, entrepreneurship and strategic thinking. He has received several awards and recognition by local, state and federal agencies for his work in entrepreneurship and minority business development. Mr. Reimer served as member of the Minority Economic Development Committee of New Detroit. Mr. Reimer is member of the Small Business Advisory Council of the Detroit Regional Chamber of Commerce. Mr. Reimer is a member of Advisory Board of the Milwaukee Junction Small Business Assistance Center. He is also a member of the Applied Innovation Alliance. Mr. Reimer serves as a KEEN Fellow for The Kern Family Foundation and is a member of United States Association of Small Business and Entrepreneurship.
High School STEM Competition

December 4, 2020, Friday, 2:30 pm – 6:30 pm (USA Pacific Time)

Session Chair: Professor Don Reimer, LTU, Michigan, USA
Judges: Dr. Karim, Dr. Murrey Dr. Pandianvand Dr. Saso

2:30-2:45 pm
**ID 641 STEAMS Methodology of Sports Science and Injury**
Lily Sun and Mason Chen, Stanford Online High School, Redwood City, CA 94063, USA

2:45-3:00 pm
**ID 537 Predict 2020 USA Presidential Election COVID-19 Correlation**
Saloni Patel, Stanford Online High School, Redwood City, CA 94063, USA
Mason Chen, Stanford Online High School, Redwood City, CA 94063, USA
Patrick Giuliano, Abbott Structural Heart, Menlo Park, CA 94025, USA

3:00-3:15 pm
**ID 584 Ocean Acidification, Simulated Statistical Investigation**
Emersen Panigrahi, Stanford Online High School

3:15-3:30 pm
**ID 583 Does Gender Identification at Birth Correlate with Empathy Level?**
Sophia M. Panigrahi, Stanford Online High School

3:30-3:45 pm
**ID 597 Empire four- Phase II**
Logeshwari Chandramohan, Wilcox High School, Santa Clara, CA 95051, USA

3:45-4:00 pm
**ID 542 Emotion and Correlations to Time (Applications of EEG)**
Arhan Surapaneni, Stanford OHS, Academy Hall Floor 2 8853 415 Broadway, Redwood City, CA 94063, USA

4:00-4:30: Break

4:30-4:45 pm
**ID 635 NBA Player Aging Influence & Benchmarking Analysis**
Chi-Feng Ho, Junior, Henry M. Gunn High School, Palo Alto, CA 94303, USA
Mason Chen, Sophomore, Stanford University OHS, Palo Alto, CA 95132, USA

4:45-5:00 pm
**ID 634 Statistical Modeling of Stock Investment during COVID-19**
Chi-hong Ho, Junior, Henry M. Gunn High School, Palo Alto, CA, USA
Mason Chen, Sophomore, Stanford University OHS, Palo Alto, CA, USA

5:00-5:15 pm
**ID 543 Design an Innovative Poker AKQJ Game and Study Players’ Psychological Characters**
Mason Chen and Saloni Patel, Stanford OHS, Academy Hall Floor 2 8853 415 Broadway, Redwood City, CA 94063, USA

5:15-5:30 pm
**ID 544 “STEAMS” Methodology of NBA Draft Player Position**
Mason Chen, Stanford OHS, Academy Hall Floor 2 8853 415 Broadway, Redwood City, CA 94063, USA

5:30-5:45 pm
**ID 614 Designing a Modern Partial Deck AKQJ Poker Game to Aid in Reducing Gambling Disorder**
Siddhant Karmali, Stanford University Online High School, United States

5:45-6:00 pm
**ID 637 Monte Carlo Simulations in Poker and Gambling**
Arhan Surapaneni, Stanford Online High School, United States

6:00-6:15 pm
**ID 538 Use of Bio-printing Technology to Produce Vitamin a Micronutrient Supplements That can be Used to Combat in Malnutrition in Zimbabwe**
Kennedy Barnes, Department of Life Science, Ecoteck Laboratory, Detroit, MI 48202, USA
Rising Senior at Renaissance High School in Detroit, Michigan, USA

6:15-6:30 pm
**ID 678 Why is there a disproportion of cases and deaths for minorities in the U.S.**
Takiyah Ali, Michigan Islamic Academy, Ann Arbor, USA
### December 7, 2020 (Monday)

<table>
<thead>
<tr>
<th>Time</th>
<th>Room 1</th>
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<th>Room 4</th>
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</thead>
<tbody>
<tr>
<td>8:00 – 9:45 am</td>
<td>Business Management</td>
<td>Artificial Intelligence</td>
<td>Optimization</td>
<td>Engineering Education</td>
</tr>
<tr>
<td>10:00 – 11:45 am</td>
<td>Business Management</td>
<td>Operations Management</td>
<td>Modeling and Simulation</td>
<td>Environmental Engineering</td>
</tr>
<tr>
<td>12:00 – 1:45 pm</td>
<td>Optimization</td>
<td>Industry 4.0</td>
<td>Manufacturing</td>
<td>Entrepreneurship</td>
</tr>
<tr>
<td>2:00 – 3:45 pm</td>
<td>Supply Chain Competition</td>
<td>Undergraduate Student Paper Competition</td>
<td>Graduate Student Paper Competition</td>
<td>Simulation Competition</td>
</tr>
<tr>
<td>4:00 – 5:45 pm</td>
<td>Supply Chain Competition</td>
<td>SENIOR PROJECT COMPETITION</td>
<td>Thesis and Dissertation Competition</td>
<td>COVID-19 Competition</td>
</tr>
<tr>
<td>6:00–9:00 pm</td>
<td>Quality Control Competition</td>
<td>Industry 4.0 Panel</td>
<td>Industrial and Manufacturing</td>
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### December 8, 2020 (Tuesday)

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<tr>
<th>Time</th>
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<th>Room 4</th>
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<tbody>
<tr>
<td>8:00 – 9:45 am</td>
<td>Supply Chain and Entrepreneurship</td>
<td>Lean</td>
<td>Energy</td>
<td>Business Management</td>
</tr>
<tr>
<td>10:00 – 11:45 am</td>
<td>Global Business Management Education</td>
<td>Data Analytics and Big Data</td>
<td>Sustainability and Green Systems</td>
<td>Transportation and Traffic</td>
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<tr>
<td>12:00 – 1:40 pm</td>
<td>Global Engineering Education I</td>
<td>E-Business/E-Service</td>
<td>Business Management</td>
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<tr>
<td>1:40 – 4:30 pm</td>
<td><strong>Keynote Speakers</strong></td>
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<tr>
<td>4:45 – 6:15 pm</td>
<td>Industry Solutions</td>
<td>Operations Research</td>
<td>Entrepreneurship Education</td>
<td></td>
</tr>
<tr>
<td>6:30 – 8:00 pm</td>
<td>Engineering Education</td>
<td>Healthcare Systems</td>
<td>Engineering Management</td>
<td>Energy</td>
</tr>
<tr>
<td>8:15 – 10:00 pm</td>
<td>Business and Manufacturing Operations</td>
<td>Global Engineering Education Panel</td>
<td>Energy</td>
<td>Waste Management</td>
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### December 9, 2020 (Wednesday)

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:00 – 9:45 am</td>
<td>Business and Manufacturing Operations</td>
<td>Information Technology</td>
<td>Operations Research</td>
<td>Logistics and Supply Chain</td>
</tr>
<tr>
<td>10:00 – 11:45 am</td>
<td>Global Engineering Education II</td>
<td>Operations Research</td>
<td>Industrial and Manufacturing</td>
<td>Healthcare Systems</td>
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<tr>
<td>12:00 – 1:40 pm</td>
<td>Global Engineering Education III</td>
<td>Industry 4.0</td>
<td>Product Development and Optimization</td>
<td>Business Management</td>
</tr>
<tr>
<td>1:40 – 4:30 pm</td>
<td><strong>Keynote Speakers</strong></td>
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<tr>
<td>4:45 – 6:15 pm</td>
<td>Industry Solutions II</td>
<td>Women in Industry and Academia Panel</td>
<td>Cyber Security</td>
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<tr>
<td>6:30 – 8:00 pm</td>
<td>Waste Management</td>
<td>Project Management</td>
<td>Construction Management</td>
<td>Design and Analysis</td>
</tr>
<tr>
<td>8:15 – 10:00 pm</td>
<td>Quality Control and Management</td>
<td>Entrepreneurship and Innovation</td>
<td>Inventory Management</td>
<td>Business Management</td>
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### December 10, 2020 (Thursday)

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<th>Time</th>
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<tbody>
<tr>
<td>8:00 – 9:45 am</td>
<td>Quality and Reliability</td>
<td>Operations Research</td>
<td>Supply Chain Management</td>
<td>Sustainability and Green Systems</td>
</tr>
<tr>
<td>10:00 – 11:45 am</td>
<td>Business Management</td>
<td>Sustainability and Green Systems</td>
<td>Energy</td>
<td>Industry Practices and Solutions</td>
</tr>
<tr>
<td>12:00 – 1:40 pm</td>
<td>Global Engineering Education IV</td>
<td>Industry 4.0 &amp; Logistics 4.0</td>
<td>Environmental Engineering</td>
<td>Industry Solutions III</td>
</tr>
<tr>
<td>1:40 – 4:30 pm</td>
<td><strong>Keynote Speakers</strong></td>
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<tr>
<td>4:30 – 6:30 pm</td>
<td>Conference Awards Ceremony</td>
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<tr>
<td>6:30 – 8:00 pm</td>
<td>Diversity and Inclusion Panel</td>
<td>Product Development</td>
<td>Cybersecurity</td>
<td>Multi-Disciplinary</td>
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</table>
**December 7, 2020 (Monday) - Session: 8:00 – 9:45 am**

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Room</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>8:00 – 9:45 am</td>
<td>Business Management</td>
<td>Room 1</td>
<td>ID 261  Green Brand Awareness Factors on the Body Shop Product</td>
<td>Nadya Moeliono, Devilia Sari, Benny Kurnia, Mahendra Fakhri and Diaz Adia Anindita, School of Communication and Business Telkom University, Indonesia</td>
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<td>ID 235  Hospital Pharmaceutical Vendor Managed Inventory Supported by Internet of Things</td>
<td>M. Dachyar and Rebecca Yolanda, Department of Industrial Engineering, Universitas Indonesia, Depok, Indonesia</td>
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<td>ID 218  Implementation Barriers in the Establishment and Management of Bumdesa in Deli Serdang City, Indonesia</td>
<td>Nelly Armayanti, Department of Office Administration, Universitas Negeri Medan, Medan, Indonesia; Dodi Pramana, Department of Office Administration, Universitas Negeri Medan, Medan, Indonesia; Indra Maipita, Department of Business Education, Universitas Negeri Medan, Medan, Indonesia; Rangga Restu Prayogo, Department of Entrepreneurship, Universitas Negeri Medan, Medan, Indonesia</td>
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<td>ID 429  Improving the Management Quality of Research and Community Service Institute using SIMPEMAS</td>
<td>Deden Ardiansyah, Department of Computer Technologies, Vocational School, Universitas Pakuan, Indonesia; Prihastuti Harsani, Department of Computer Science, Faculty of Mathematics and Natural Sciences, Universitas Pakuan, Indonesia; Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia</td>
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<td>ID 085  Market Risk and Market Value of Listed Deposit Money Banks in Nigeria</td>
<td>Ahmadu Abubakar, Department of Business Management, Federal University Dutsin-Ma, Katsina State, Nigeria</td>
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<td>ID 536  Need for Resilience Healthcare Facilities Management (RHFM) In Malaysia’s Public Hospitals: A Critical Literature Review</td>
<td>Noradifishah Sulaiman, Sheikh Kamran Abid, Umber Nazir, Nur Putri Najwa Mahmud, Siti Kursiah Kamalia Abdul Latib, Harizdah Fathini Muhammad Hafidz, KANZU Research: Resilient Built Environment (RBE), Department of Real Estate, Faculty of Technology Management &amp; Business, Universiti Tun Hussein Onn Malaysia (UOTH), 86400, Johor, Malaysia; Ahmed Farhan Roslan, Construction Research Institute of Malaysia (CREM), Malaysia; Norbaya Ab Rahim, Department of Estate Management, Faculty of Architecture, Planning &amp; Surveying, Universiti of Teknologi Mara (UiTM)</td>
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<td>ID 053  A Literature Review on the Impact of Municipal Density-Related Strategies on the Feasibility of Real Estate Developments</td>
<td>Zara Marais, Michelle Burger and Benita Zulch, Department of Construction Economics, EBIT Faculty, University of Pretoria, Pretoria, South Africa</td>
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**8:00 – 9:45 am, MONDAY**

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<tr>
<th>Session</th>
<th>Room</th>
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<tbody>
<tr>
<td>Artificial Intelligence</td>
<td>Room 2</td>
<td>ID 087  Adaptive Radial Basis Function Artificial Neural Network Control for Two-Flexible-Link Robots</td>
<td>Francis Kunzi Tekweme, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, South Africa</td>
</tr>
<tr>
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<td>ID 113  Anomaly Detection on the High Throughput Network of the ATLAS DAQ System</td>
<td>Mitchell Phiri, Simon H. Connell and Pathmanathan Naidoo, Department of Mechanical Engineering Science, University of Johannesburg, Johannesburg - 2006, South Africa; Mikel E. Pozo Astigarragay, ATLAS Trigger and Data Acquisition, European Organisation for Nuclear Research, Meyrin - 1217, Switzerland; Dave Nicholls, NESCA Board, South African Nuclear Energy Corporation, North West Province - 0240, South Africa</td>
</tr>
<tr>
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<td>ID 053  Attempt for an Expert Systems Leading to Intelligent Extraction of Cobalt and Copper from Co-Cu Complex Ore</td>
<td>Antoine F. Mulaba – Bafubiani and Divin Shabani, Mineral Processing and Technology Research Centre, Department of Metallurgy, School of Mining, Metallurgy and Chemical Engineering, Faculty of Engineering and The Built Environment, University of Johannesburg, P.O Box 17911, Doornfontein, Johannesburg 2028, South Africa</td>
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<tr>
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<td>ID 304  Automatic Detection of Surface Defects in Fused Deposition Modeling (FDM) using Computer Vision and Deep Learning</td>
<td>Naqib Mahmud Chowdhury and Md. Galib An-Noor Amio, Department of Industrial and Production Engineering, Bangladesh University of Engineering and Technology, Dhaka-1000, Bangladesh</td>
</tr>
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<td>ID 365  FEA of a Lab-Scale IC Engine Connecting Rod</td>
<td>Daramy Vandi Von Kallon, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa; Bai Kamara, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa</td>
</tr>
<tr>
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<td>ID 054  Simultaneous Resin and Coal Recovery from Coal Bearing Resin</td>
<td>Antoine Mulaba - Bafubiani and Nokubonga G. Zulu, Mineral Processing and Technology Research Centre, Department of Metallurgy, School of Mining, Metallurgy and Chemical Engineering, Faculty of Engineering and The Built Environment, University of Johannesburg, 37 Nind Street Doornfontein, Johannesburg, 2028, South Africa</td>
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<td>ID 556  An Evaluation of the Importance of E-commerce Adoption to the Growth of SMEs in Zimbabwe</td>
<td>Belinda Gurure and Sam Takavarasha Jr, Women’s University in Africa, Harare, Zimbabwe</td>
</tr>
</tbody>
</table>
ID 465  Life Insurance Policy/Products Selection Using Analytical Hierarchy Process (AHP)
Chris Ren S. Pimentel, John Louis I. Encinas and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 464  Optimization of the Allocation of Production Specialist Working in a Semiconductor Company under the Compressed Skeletal Workforce Schedule Using Linear Programming
Katrina Laurain Gaspar and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 208  Investigating the Role of Benchmarking as a Cost Control Measure: Lessons from Selected Restaurants in Johannesburg, South Africa
Gumbo. M. Musakwa, W. Ingwani. E and Gumbo.T, University of Johannesburg, Gauteng, South Africa

ID 432  BPJS Health Insurance Program: SME's Perspective
Fredi Andria and Ulfa Sri Rahayu, Department of Management, Faculty of Economics Pakuan University, Bogor Indonesia
R. Muhammad Mihradi, Department of Law, Faculty of Law Pakuan University, Bogor Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 439  Determination of Earthquake Insurance Premiums Using the Bayesian Method
Sukono, Agus Supriatna, Rizky Akbar Hidayat and Riaman, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia
Kalfin, Doctor Program of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia
Faiza Renaldi, Department of Informatics Engineering, Faculty of Science and Informatics, Universitas Jenderal Achmad Yani, Cimahi, West Java, Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 442  Estimated Value at Risk in Stock Investments in An Insurance Company using the Extreme Value Theory Method
Riaman, Sudradjat Supian and Sukono, Department of MathematicsFaculty of Mathematics and Natural Sciences, Padjadjaran University, Jatinangor 40363, Indonesia
Mustafa Mamat, Faculty of Informatics and Computing, Universiti Sultan Zainal Abidin, Kuala Terengganu, Malaysia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 523  Improvement of Mathematical Communication Skills and Learning Independence Students Who Get Quantum Teaching Models and Discovery Learning Models
Basuki and Ega Dwi Utami, Mathematics Education Study Program, Institut Pendidikan Indonesia, Garut, West Java, Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 589  The Effectiveness of Group Mentoring Services in Reducing the Communicational Anxiety of Students
Luhan Harahap, Layyin Mahfiana, IAIN Surakarta Middle Java, Indonesia
Devit Etika Sari, STAI Miftahul Ula Nganjuk, East Java Indonesia
Muzayyanah Yuliasih, STP Aviasi, Jakarta Indonesia
Rika Istaningrum, Universitas Baitul Iman Indonesia

ID 590  Improving the students of the EFL speaking class
Mukhisin, STAI Miftahul Ula Nganjuk, East Java, Indonesia
Syihabjul Hudaa, Institut Teknologi dan Bisnis Ahmad Dahlan Jakarta Indonesia
Yogi Purnama, Universitas Insan Padjadjaran PGRI, Indonesia
Desy Riana Pratiwi, Universitas Padjadjaran Indonesia
Feny Martina, IAIN Bengkulu Indonesia

ID 604  The Application of Performance Appraisal on Learning the Benefits and Advantages of Test Competencies to Vocation High School Beauty Programs
Emy Indaryani, Hartati Muchtar, and Diana Nomsita Musnir, Education Technology, Universitas Negeri Jakarta, Jl. Rawamangun Muka, Jakarta Timur, Indonesia

ID 601  The Importance of Character Education in Higher Education (University) in Building the Quality Students
Rif‘ah, IAI Ibrohimy Situbondo, East Java, Indonesia
Hosaini, Universitas Bondowoso, East Java, Indonesia
Winci Firdaus, Badan Pengembangan dan Pembinaan Bahasa, Indonesia
Ixsi1 Eliya, Achmad Ja‘far Sodik, IAIN Bengkulu Indonesia

ID 287  Curriculum and learning;
Gunawan Santoso, Student from Education University Indonesian (UPI), Bandung and Lecturer Muhammadiah of Jakarta University (UMJ), Jakarta, Indonesia
Pay LPDP KemenKeu RI

Break 9:45 – 10:00 am
**December 7, 2020 (Monday) - Session: 10:00 am – 11:45 am**

### Business Management

**Room 1**

**Session Chair:** Muhammad Ikhsan Setiawan, Narotama University, Indonesia

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<td>591</td>
<td>The Impact of CIRC (Cooperative Integrated Reading Composition) In Reading Comprehension Ability by Using the Cooperative Approach</td>
<td>Muh. Barid Nizarudin Wajdi, STAI Miftahul Ula Nganjuk, East Java, Indonesia, Zelia Liska Afriansi, Henry Priantary, IAIN Bengkulu, Indonesia, Yunita Suryani, Universitas PGRI Ronggolawe Tuban, East Java, Indonesia, Rika Istiningrum, Universitas Batulaka, Indonesia</td>
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<td>603</td>
<td>The Effect of Financial Performance of Corporate Social Responsibility Disclosure in Companies in Indonesia Stock Exchange Period 2014-2016</td>
<td>Yulinaartti, Norita Citra Yuliarti, and Gardina Aulin Nuha, University of Muhammadiyah, Jember, Indonesia, Lely Ana Ferawati Ekaningsih, Institute of Islamic Studies Darussalam, Banyuwangi, Indonesia, Febranty, Politeknik Palomar Tech, Indonesia</td>
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<td>599</td>
<td>The Islamic Working Culture of BRI Syariah and Its Influence on Employee Performance (Case Study at BRI Syariah Banyuwangi Branch)</td>
<td>Nurul Inayah, Institut Agama Islam Darussalam, Blokagung, Banyuwangi, Indonesia, Abdul Kholiq Syafaat, UIN Sunan Ampel Surabaya, East Java, Indonesia, Dwi Novaria Misidiawati, IAIN Pekalongan, Indonesia, Ahmad Hariyadi, IKIP PGRI Bojonegoro, East Java, Indonesia, Endah Yuliani, UNIPA Surabaya, Indonesia</td>
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<td>598</td>
<td>Multicultural Education in a Religious Life: Developing Harmony among Religions in Southeast Asia</td>
<td>Mukhamad Ilyasin, Zamroni, IAIN Samarinda, Borneo, Indonesia, Hasan Baharun, Nurul Jardid University, Probolinggo, East Java, Indonesia</td>
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### Operations Management

**Room 2**

**Session Chair:** Lawrance Seseni, University of Johannesburg, South Africa

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<td>Sentiment Analysis of User Preferences on Learning Management System (LMS) Platform Data</td>
<td>Boldson Herdianto Situmorang and Andi Chairunnas, Department of Computer Science, Faculty of Mathematics and Natural Sciences, Universitas Pakuan, Indonesia, Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia</td>
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<td>371</td>
<td>Social Sciences, Services and Industrialisation in Zimbabwe: Shaping the Debate and Practice</td>
<td>Innocent Chirisa, Dean of the Faculty of Social and Behavioural Sciences, Department of Demography, Settlement and Development, Department of Architecture and Real Estate, University of Zimbabwe, Harare, Zimbabwe, Patience Mazanhi, Department of Demography, Settlement and Development, Department of Architecture and Real Estate, University of Zimbabwe, Harare, Zimbabwe</td>
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<td>271</td>
<td>The Effect of Green Human Resources Management on Service Quality in the Pandemic Time of Covid-19 On State-Owned Enterprise Hospitals the Republic of Indonesia</td>
<td>Asep Safdlin, Student of the Mercu Buana University Doctoral Program, Jakarta, Indonesia, M. Havidz Aina, Professor and Head of the Doctoral Program at Mercu Buana University, Jakarta, Indonesia, Achmad Hidayat Sutawidjaya and Sugiyono, Postgraduate Lecturer at Mercu Buana University, Jakarta Indonesia</td>
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<td>The Effect of Emotional Intelligence Toward Decision-Making at Family Planning Officer</td>
<td>Ida Nurima, Mahendra Fakhrri, Benny Kurnia, Alex Winarno and Rahmi Aulia, School of Communication and Business, Telkom University, Bandung, West Java, Indonesia</td>
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<td>279</td>
<td>The Effect of E-Service Quality on E-Satisfaction: Case Study of Lazada Users in Pekanbaru, Indonesia</td>
<td>Aditya Wardhana, Telkom University, Jalan Terusan Buah Batu, Bandung 40257, Indonesia, Budi Rustandi Kartawinata, Telkom University, Jalan Terusan Buah Batu, Bandung 40257, Indonesia, Diki Wahyu Nugraha, Prodi/Jurusan D4 Teknik Informatika Politeknik Pos Indonesia, Jln. Sari Ash No. 54, 40151 Bandung, Jawa Barat, Indonesia, Iqbal Firmansyah, Trisakti School of Transportation Management, Indonesia, Jakarta, Indonesia, Galang Tegar Prahar, Telkom University, Jalan Terusan Buah Batu, Bandung 40257, Indonesia</td>
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<td>399</td>
<td>The Influence of Democratic Leadership Style on Clan Organizational Culture in Family Companies</td>
<td>Mahendra Fakhrri, Ida Nurima, Alex Winarno, Anita Silvianita, Benny Kurnia and Syarifa Hanum, School of Communication and Business Telkom University, Bandung, West Java, Indonesia</td>
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ID 531 Identifying Factors that Contribute to Poor Performance of Junior Coal Miners in South Africa
Zanele Mpanza, Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa

ID 535 Factors Contributing to Rising Price of Chinese Memorial Par...Cemeteries (CMPCs) in Malaysia
Noralfishah Sulaiman, Ler Sin Sin and Umber Nazir, KANZU Research: Resilient Built Environment (RBE), Faculty of Technology Management and Business (FPTP), Universiti Tun Hussein Onn Malaysia (UTHM), 86400 Parit Raja Batu Pahat Johor, Malaysia

10:00 am – 11:45 am, MONDAY Modeling and Simulation Room 3
Session Chair: Michael Mutingi, Namibia University of Science and Technology, Windhoek, Namibia

ID 119 Investigating the Optimal Stiffener Locations of an Actiflo Clarifier under Hydrostatic Pressure
P. Maqina, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa
D.V.Kallon, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 325 Modeling of the Logistical Processes of a Hospital Supply Chain: The Case of HUC of BENGUERIR
Fatima OUIZAYD, Smart System Laboratory (SSLab), ENSIAS Mohamed V University Rabat, Morocco
Kawtar RETMI, Center of Biological and Medical Sciences, CIAM, Mohamed VI Polytechnic University (UM6P), 43 150 Ben-Guerir, Morocco

ID 368 Modelling the Design of a Centrifugal Pump Shaft that can Withstand Fatigue Failure Rate, Stress and Strain during Backpressure
P. B. Sob, Department of Mechanical Engineering, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa

ID 382 The Design of Spray Nozzle for Washing Aggregates in Mining Industry
T.J Muhanwelwa, P. B. Sob and A. A. Alugongo, Department of Mechanical Engineering, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa
T. B. Tengen, Department of Industrial Engineering and Operations Management, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa

ID 011 Thermal Modelling and Simulation of a Screw Extruder for Additive Manufacturing Technology
Ilesanmi Daniyana, Khubulani Mpfoua and Adefemi Adeodub, Department of Industrial Engineering, Tshwane University of Technology, Pretoria 0001, South Africa
Department of Mechanical & Mechatronics Engineering, Afe Babalola University, Ado Ekiti, Nigeria

ID 568 Branch Network Optimization Model following Two Banks Merger
Sobhi Mejiaouli and Sara Qanaq, Industrial Engineering Department, Alfaisal University, Riyadh, KSA

10:00 am – 11:45 am, MONDAY Environmental Engineering Room 4
Session Chair: Dr. Wilbert Mtangi, Chinhoyi University of Technology, Chinhoyi, Zimbabwe

ID 303 A Cost Analysis of a Biomass Supply Chain for Sustainable Aviation Fuel in South Africa
Shivani Sookial, School of Mechanical, Industrial and Aeronautical Engineering, University of the Witwatersrand, Johannesburg, South Africa
Bernadette Sunjka, School of Mechanical, Industrial and Aeronautical Engineering, University of the Witwatersrand, Johannesburg, South Africa

ID 080 A Phenomenological Study of Cobalt and Copper from the African Copperbelt Deposits
Dorcas Ruvimbo Zingowo and Antoine Mulaba – Bafubiani, Mineral Processing and Technology Research Centre, Department of Metallurgy, School of Mining, Metallurgy and Chemical Engineering, Faculty of Engineering and The Built Environment, University of Johannesburg, 37 Nind Street Doornfontein, Johannesburg, 2028, South Africa

Busola Dorcas Olagunju and Oludolapo Akanni Olarenwaju, Department of Industrial Engineering, Faculty of Engineering and the Built Environment, Durban university of Technology, Durban, South Africa

ID 293 Optimization the Process and Production of Polyurethane Foam from Soybean Oil
Flora Elvistia Firdaus, Department of Chemical Engineering, Jayabaya University, Jl.Pulomas Selatan Kav 23, Jakarta Timur- 13210, Indonesia
Muhammad Dachyar, Department of Mechanical Engineering, Universitas Indonesia, Kampus UI Depok – 16424, Indonesia

ID 251 Utilization of Cornstalk Fiber into the Styrofoam Matrix as a Preliminary Study for Earthquake Resistant Particleboard
Flora Elvistia Firdaus and Rico Andreansyah, Department of Chemical Engineering, Jayabaya University, Jakarta Timur- 13210, Indonesia

ID 522 Android-Based Information Technology Design for Easy Parking
Sri Wiwoho Mudjanarko, Department of Civil Engineering, Narotama University, Surabaya, 60117, INDONESIA
Made Kamisutara, Departement of Informatic Engineering, Narotama University, Surabaya, 60117, INDONESIA
Tubagus Purwosuwardi, Department of Economics and Business, Narotama University, Surabaya, 60117, INDONESIA
Achmad Muchayan, Department of Information System, Narotama University, Surabaya, 60117, INDONESIA
Slamet Winardi, Departement of Computer System, Narotama University, Surabaya, 60117, INDONESIA
Rizal Bahaswan, Departement of Civil Engineering, Narotama University, Surabaya, 60117, INDONESIA
Firdaus Pratama Wiwoho, Department of Civil Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, 60117, INDONESIA
### December 7, 2020 (Monday) - Session: 12:00 – 1:45 pm

**Room 1: Optimization**

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<td>Mitigation Efforts and Natural Disaster Insurance Schemes in Indonesia</td>
<td>Kaffin, Doctor Program of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia</td>
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<td>445</td>
<td>On Line One Stop Government and Open Government from Citizens Perspective (Case: Bogor City and District, West Java, Indonesia)</td>
<td>Eneng Tita Tosida and Fajar Delli Wihariko, Department of Computer Science, Faculty of Mathematics and Natural Sciences, Universitas Pakuan, Indonesia</td>
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<td>433</td>
<td>Optimization JKN Mobile for Informal Sector of BPJS Health Insurance Membership Growth</td>
<td>Fredi Andria, Meli Deranti and Lisa Mila Sari, Department of Management, Faculty of Economics Pakuan University, Bogor Indonesia</td>
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<td>Reserve of Life Insurance Prospective Dwiguna Joint Life and Last Survivor With Gompertz Law</td>
<td>Hasrilia, Tumpal Parulian Nababan and Ilda Hasbiyati, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Riau, Indonesia</td>
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<td>448</td>
<td>The Graphically Analysis of the Power of Hypothesis Parameters on Discrete (Binomial) and Continuous (Gamma) Distributions</td>
<td>B. Pratikno, A. Kurniasih, Mashuri and N. Azizah, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Jenderal Soedirman, Indonesia</td>
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<td>437</td>
<td>Usability testing on the Drug e-Dictionary using the Think-Aloud Retrospective Method and USE Questionnaire</td>
<td>Halimah Tus Sadiah and Ema Kurnia, Information System Department, Universitas Pakuan, Bogor, 16143, West Java, Indonesia</td>
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**Room 2: Industry 4.0**

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<td>Addressing Covid-19 in Higher Learning Institutions through Implementing Cryptocurrency Payments Based on Blockchain Technologies</td>
<td>Chimuka Moonde, Jackson Phiri, Computer Science Department, University of Zambia, Lusaka, P.O. Box 32379, Zambia</td>
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<td>Analysis of Factors Affecting Behavior of Students Online Shopping (Case: Diponegoro University)</td>
<td>Zainal Fanani Rosyada, Naniek Utami Handayani, Manik Mahacadhara, Ega Rizkiyah, Department of Industrial Engineering, Diponegoro University, Semarang, 50275, Indonesia</td>
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<td>308</td>
<td>Designing e-Commerce Supply Chains</td>
<td>Tri Pujadi, Yosafati Hulu and Tumar, Information Systems Departments - School of Information Systems, Bina Nusantara University, Jakarta, Indonesia</td>
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<td>348</td>
<td>E-procurement Application for a Distributor Company</td>
<td>Tri Pujadi, Yosafati Hulu and Tumar, Information Systems Departments - School of Information Systems, Bina Nusantara University, Jakarta, Indonesia</td>
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ID 456 Increasing Online Sales through Integration of Dropship System and Social Media Platform
Faiza Renaldi, Rival Muhamad Saepuloh and Agya Java Maulidin, Department of Informatics, Universitas Jenderal Achmad Yani, Indonesia
Abdul Taib Balon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 094 Measurement of Performance, Effort, Social Influence, Facilitation, Habit and Hedonic Motives toward Pay later Application Intention: Indonesia Evidence
Gidion P. Adirineksjo, Department of Management Faculty Economics and Business, Universitas Kristen Krida Wacana, Jakarta, 11470 Indonesia
John Tampul Purba & Sidik Budiono, Department of Management Faculty of Economics and Business, Universitas Pelita Harapan, Tangerang 15811, Indonesia

ID 552 Design of an Intelligent Robotic Tool for Intracranial Haemorrhage Detection at Road Traffic Accident Scenes
Tinotenda Joramu and Tawanda Mushiri, Department of Industrial and Mechatronics Engineering, Faculty of Engineering and the Built Environment, University of Zimbabwe, Harare, Mt Pleasant, 630 Churchill Avenue, Zimbabwe

12:00 – 1:45 pm, MONDAY Manufacturing Room 3
Session Chair: Dr. Londiwe Cynthia Nkiwane, National University of Science and Technology, Bulawayo, Zimbabwe

ID 151 A Framework for a Reconfigurable Welding Jig for Sheet Metal Panel Component of a Railcar
Ilesanmi Daniyana, Makinde Osilumob, Boitumelo Ramatsetsea and Khumbulani Moofua
Department of Industrial Engineering, Tshwane University of Technology, Pretoria, 0001, South Africa
Department of Operations Management, Tshwane University of Technology, Pretoria, 0001, South Africa

ID 332 Accessing Production Machine Technology Flexibility Potential
Ngaka Mosia, Department of Mechanical and Industrial Engineering, University of South Africa, Gauteng, Johannesburg, RSA

ID 167 An Overview of Nanomanufacturing with Bibliometric Indicators
A. Almarfadi, Fawaz M. Abdullah and Abdulrahman M. Al-Ahmari, Industrial Engineering Department, College of Engineering, King Saud University, P. O. Box 800, Riyadh 11421, Saudi Arabia
Wadea Ameen, Industrial Engineering Department, College of Engineering and Architecture, Al Yamamah University, Riyadh-11512, Saudi Arabia
Galal M. Muthanna, Business Administration Department, Faculty of Social and Applied Sciences, The University of Aden, Aden - 6312, Yemen

ID 409 Analysis of Elastic-Plastic Buckling of a Thin Rectangular Plate, Considering Nonlinear Strain Terms
Roy N Mushonga, Faculty of Engineering, Isfahan University of Technology, Iran and Faculty of Engineering, University of Zimbabwe, Harare, Zimbabwe
Mehdi Salmani-Tehrani, Faculty of Engineering, Isfahan University of Technology, Iran
Loice Gudukeya, Faculty of Engineering, University of Zimbabwe, Harare, Zimbabwe and Faculty of Engineering and the Built Environment, University of Johannesburg, Johannesburg, South Africa
Hilton Chingosho and Ignatio Madanhire, Faculty of Engineering, University of Zimbabwe, Harare, Zimbabwe

ID 204 Computational Fluid Dynamics and Simulation of a Mixing Mould Unit of a Mini Foam Batch Production Plant
O. J. Oyejide 1, J. Achebo 2, M. O. Okwu 3, 3 and L. Tartibu 3
1 O. J. Oyejide, Department of Mechanical Engineering, Federal University of Petroleum Resources Effurun, Delta State, Nigeria
2 J. Achebo, Department of Production Engineering, University of Benin, Nigeria
3 M. O. Okwu and L. Tartibu, Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa

ID 205 Development of a Mixing and Mould Unit for Mini Foam Batch Production Plant
1 Department of Mechanical Engineering, Federal University of Petroleum Resources Effurun, Nigeria
2 Department of Production Engineering, University of Benin, Nigeria
3 Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa

12:00 – 1:45 pm, MONDAY Entrepreneurship Room 4
Session Chair: Grace Kanakana, University of South Africa

ID 327 The Dilemma of Productivity Improvement Initiatives
Ngaka Mosia, Department of Mechanical and Industrial Engineering, University of South Africa, Gauteng, Johannesburg, South Africa

ID 344 Communication Model in Blended Learning Using Telegram Applications
Kawakibul Qamar and Erik Teguh Prakoso, University of Kanjuruhan, Malang, Indonesia
Veronika Nugraheni Sri Lestari, University of Dr. Soetomo, Surabaya, Indonesia
Ifit Novita Sari, University of Islam Malang, Indonesia

ID 289 Distribution of Day Fish in Ternate City Water Based on Chlorophyll-a
Syahnul Sardi Titaheluw 1, Arson Batilambu 2, Umar Tangke 3, Rovina Andhiani 4 and Raismin Kotta 5
1 Department of Fisheries Product Technology, Faculty of Agriculture, Muhammadiyah University North Maluku. Jln KH Ahmad Dahlan, Sasa, South Ternate, Ternate City, North Maluku Province, Indonesia
2 Student of the Department of Fisheries Product Technology, Faculty of Agriculture, Muhammadiyah University North Maluku. Jln KH Ahmad Dahlan, Sasa, South Ternate, Ternate City, North Maluku Province, Indonesia
3 Department of Fisheries Product Technology, Faculty of Agriculture, Muhammadiyah University North Maluku. Jln KH Ahmad Dahlan, Sasa, South Ternate, Ternate City, North Maluku Province, Indonesia
ID 049  Possible Impact of Adequate Organizational Structure on the Bottom Line of Artisanal and Small-Scale Mineral Business: Case of Sandstone Processing
Antoine F. Mulaba – Bafubiandi and Beejo Blessing Chauke, Mineral Processing and Technology Research Centre, Department of Metallurgy, School of Mining, Metallurgy and Chemical Engineering, Faculty of Engineering and The Built Environment, University of Johannesburg, P.O.Box 17911, Doornfontein, Johannesburg 2028, South Africa

ID 285  Reflection of the Virtual Learning Environment in the Covid-19 Pandemic Period
Haerul, Andoyo Sastramiharjo, Vismaia S. Damaianti and Yeti Mulyati, Universitas Pendidikan Indonesia, Bandung, Indonesia

ID 288  The Effect of Compensation and Transformational Leadership on Job Satisfaction Mediated with Job Motivation
Umar Yeni Suyanto, Taxation Department, STIE KH. Ahmad Dahlan, Lamongan, 62218
Mu‘ah, Management Department, STIE KH. Ahmad Dahlan Lamongan, 62218
Ika Purwanti, Management Department, STIE KH. Ahmad Dahlan Lamongan, 62218
Muhammad Dzikri Abadi, Management Department, STIE KH. Ahmad Dahlan Lamongan, 62218
Agung Himantono, Accountancy Department, STIE KH. Ahmad Dahlan Lamongan, 62218
Mokhtar Sayyid, Taxation Department, STIE KH. Ahmad Dahlan, Lamongan, 62218

ID 557  Anti Radicalism Education; Amplification of Islamic Thought and Revitalization of the Higher Education in Indonesia
Abd. Hamid Wahid, Akmal Mundiri, Chusnul Mualli, and Idil Ghufron, University of Nurul Jadid, Probolinggo, East Java, Indonesia
Rosyadi Badar, IAIN Jember, East Java, Indonesia

1:45 pm – 2:00 pm Break

December 7, 2020 (Monday) - Session: 2:00 – 3:45 pm

2:00-3:45 pm, MONDAY  (Zimbabwe time)  Supply Chain and Logistics Competition  Room 1
7:00 am – 8:45 am (Michigan time)

Session Chair:

ID 418  A Modified Firefly Algorithm for Global Optimization of Collaborative Supply Chain Networks under Stochastic Demand
Abdulhadi Altherwi, Department of Industrial Engineering, Jazan University, Jazan, Saudi Arabia and Department of Industrial & Systems Engineering, Oakland University, Rochester, MI 48309, USA
Daw Alwerfalli, A Leon Linton Department of Mechanical, Robotics and Industrial Engineering, Lawrence Technological University, Southfield, MI 48075, USA

ID 095  Review and Parameterization of Make to Stock Items
Laura Stuart Lamarca Soares, Rodrigo Luiz Gigante and Henrique Ewbank de M. Vieira, Facens University, Sorocaba, SP Brazil

ID 679  Examination of Supply Chain Challenges in Large Scale Exterior Building Panels from the Perspective of an ETO Fabricator
Andrew T. Rener, PE, DBIA, F. ASCE, President of Bouma Group, Managing Member of Centerline Prefab, LLC, Grand Rapids, MI, USA

The Relationship between Enterprise Resource Planning and Supply Chain Management
Kayla Akey, Masters of Engineering Management Program, A. Leon Linton Department of Mechanical Engineering, Lawrence Technological University, Southfield, MI 48075, USA

Inventory sharing strategy and optimization for reusable transport items
Moayad Alhabobi, Master of Engineering Technology, Lawrence Technological University, Southfield, MI 48075, USA

Optimizing Festival Waste Supply Chain Management
Scott Appleby, B.S. & P.E. Mechanical Engineering, B.S. Applied Mathematics, Industrial Engineering Master’s Program
Lawrence Technical University, Southfield, MI, USA

How Lean Management Tools Can be Used to Improve Supply Chains in Construction Industries
Hassan Bukannan, Lawrence Technological University, 21000 W Ten Mile Road, Southfield MI 48075

2:00 pm – 3:45 pm, MONDAY  Undergraduate Student Paper Competition  Room 2
Session Chair: Judging Committee Chair - Dr. Saso Krstovski, Ford Motor Company, Michigan

ID 257  Blockchain-Enabled Campus Wine Supply Chain
Hannah Casper, Allison Jung, Aria Saberi and Mohamed Awwad, Department of Industrial and Manufacturing Engineering, California Polytechnic State University, San Luis Obispo, CA 93407, USA

ID 412  Developing a Maturity Model and an Implementation Plan for Industry 4.0 Integration
ID 395  Improving the Efficiency and Stability of Centrifugal Pump Filtration System Using Membrane System
T.S. Lekalakala 1, P. B. Sob 2, A. A. Alugongo 3 and T. B. Tengen 4
1,2,3 Department of Mechanical Engineering, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa
4 Department of Industrial Engineering and Operations Management, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa

ID 331  Incorporation and Design of a New Facility in a Country-wide Logistics Network
Oscar E. Ricaño, Héctor A. Lozano, José C. Moreno and Jenny Díaz-Ramírez, Universidad de Monterrey, San Pedro Garza García, Nuevo León, 66238, Mexico

2:00 pm – 3:45 pm, MONDAY  Graduate Student Paper Competition  Room 3
Session Chair: Judging Committee Chair - Dr. Andy Pandian, SVSU

ID 292  Blockchain and the Internet of Things: A Literature Review
Ashutosh Devulkar and Mohammed Awwad, Industrial and Manufacturing Engineering Department, California Polytechnic State University, San Luis Obispo, CA 93407, USA

ID 657  Product Value Enhancement by Manufacturing Process Optimization & Tolerances Standardization
Vinay Kumar Singh, Devi Ahilya Vishwavidyalaya, Indore (MP), India

ID 660  The Impact of Internet of Things on Supply Chain Performance
Maha Abdel Hamid Morssi, Hussein Magdy Elhusseiny and Dina Adel Hammad, Faculty of Transport and Logistics Management Department, Arab Academy for Science, Technology and Maritime Transport, Alexandria, Egypt

ID 684  The Effectiveness Working Capital Management Small and Medium Enterprises (SMEs) Surabaya
Falentino Heydi Senda, Mohammed Fath Alrahman Ali Rabbad, Ani Wulandari, Rizal Bahaswan, Elok Damayanti and Agus Sukoco, Faculty of Economics and Business, Narotama University Surabaya, East Java, Indonesia

ID 685  Entrepreneurial Orientation and Business Sustainability of Home Industry Leather Shoes in Surabaya
Jaya Java Putra, I Gede Arimbawa, Ani Wulandari, Agus Sukoco, Elok Damayanti, Aji Nitya Dharmani, and Osamah Faisal Mohammed Saleh, Faculty of Economics and Business, Narotama University Surabaya, East Java, Indonesia

ID 686  Determining Dividend Payout Ratio And Good Corporate Governance On Consumer Goods Companies In Southeast Asia
Ulfa Alvianti1, Agus Sukoco, Ani Wulandari, Firman Aditya, Amrun Rosyid, Mahmood Maarof Abdullah Alwan, Faculty of Economics and Business, Narotama University Surabaya, East Java, Indonesia

2:00 pm – 3:45 pm, MONDAY  Simulation Competition  Room 4
Session Chair: Judging Committee Chair - Dr. Hayder Zghair, Penn State Berks

ID 334  Agent-Based Modeling for Internet of Things (IoT) Application in a Retail Pharmacy Industry
Mohammed Basingab, Usamah Bahmele, Rayan Bafaqih, Osama Alamoudi, Abdulbari Hesiki and Abdulrhman Alghefari, Industrial Engineering Department, King Abdulaziz University, Jeddah, 22252, Saudi Arabia

ID 124  Simulation of Manchester Triage System in a Brazilian Hospital
Alan Vitor Cunha, Franklin Leonardo dos Santos, Henrique Ewbank de M. Vieira and Rodrigo Luiz Gigante, Production Engineering Department, Facens University, Sorocaba, Brazil

ID 692  Teaching Extensive Reading Using Blended Learning
Lusy Tunik Muharlisiani, Universitas Wijaya Kusuma Surabaya, Indonesia
Amrozi Khamidi, Universitas Negeri Surabaya, Indonesia
Sugeng Surisido Adi, Universitas Brawijaya, Indonesia
Nunuk Hariyati, Universitas Negeri Surabaya, Indonesia
S. Agus Santoso, Universitas Madura, Indonesia
Yenny Aman Serah, Faculty of Law, Universitas Pancasila, Pontianak, Indonesia
Lathifah Nur Karimah, Student English Education in Universitas Wijaya Kusuma Surabaya, Indonesia

ID 693  Sustainable Competitive Advantage in Finance and Management Information System
Achmad Daengs GS and Setiabudhi, University of 45 Surabaya, East Java, Indonesia
Andi Reni, University of Hasanudin Makasar, South Sulawesi, Indonesia
Syamsul Hidayat, University of Bina Bangsa Banter, Indonesia
Wahyudi Henky Soeporto, University of Ciputra Surabaya, East Java Indonesia

ID 695  Enhanced the performance of diesel fuel Blended with palm kernel oil for diesel engine
Salah K. Jawad, Mohammed M. Hamadi and Batool H. Kafi, Department of Production Engineering and Metallurgy, University of Technology, Baghdad, Iraq

Break 3:45 – 4:00 pm

December 7, 2020 (Monday) - Session: 4:00 – 5:45 pm

4:00–5:45 pm, MONDAY (Zimbabwe time)

9:00 am – 10:45 am (Michigan time)

Supply Chain and Logistics Competition

Room 1

Session Chair:

HVAC Equipment’s Spare Parts Optimization in Saudi Arabia
Mustafa Albahrani, Master of Engineering Management, LTU, Southfield, MI, USA

Improving Issue Support Network Response Time using an Chatbot
Scott Davis, Master of Engineering Management, A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering, Lawrence Technological University, Southfield, MI 48075, USA

Supply Chain Improvement Project: McDonald’s Ice Cream
Dario DiPaola, Master of Engineering Management Program, A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering, Lawrence Technological University, Southfield, Michigan, MI 48075, USA

Inventory Control in Shelf Life Managed Material and Third Party Vendors
Douaa Hassan, Master of Industrial Engineering, A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering, Lawrence Technological University, Southfield, MI 48075, USA

Emerging Supplier Selection Criteria in the Context of Traditional vs Green Supply Chain Management
Rohitha Varsha Tirumalashetty, Construction Engineering Management, LTU, Southfield, MI

Impacts of Industry 4.0 on Supply Chain Management
Devi Sururilaj, Master of Science in Engineering Technology, Department of Engineering Technology, LTU, Southfield, MI 48075

4:00 pm – 5:45 pm, MONDAY

SENIOR PROJECT COMPETITION

Room 2

Session Chair:

ID 210 Effective Conversion of Waste Cotton Textile by Acid Hydrolysis to Produce Ethanol Using Saccharomyces Cerevisiae.
Maud Gracious Fuko and Itai Mutadza, School of Engineering and Technology, Department of Chemical and Process Systems Engineering, Harare Institute of Technology, Belvedere, Harare, Zimbabwe

ID 538 Use of Bio-printing Technology to Produce Vitamin a Micronutrient Supplements That can be Used to Combat in Malnutrition in Zimbabwe
Kennedy Barnes, Department of Life Science, Ecoteck Laboratory, Detroit, MI 48202, USA
Rising Senior at Renaissance High School in Detroit, Michigan, USA

TECHNICAL PRESENTATION

ID 702 The SIR Spatial Model for COVID-19 Transmission by Resampling Method to Selecting Parameter Study Case: Java Island, Indonesia
Abdullah Sonhaji, Program Study of Mathematics, Institut Teknologi Bandung, Bandung, 40132, INDONESIA
Udijanna S. Pasaribu, Program Study of Mathematics, Institut Teknologi Bandung, Bandung, 40132, INDONESIA
Kurnia Novita Sari, Program Study of Mathematics, Institut Teknologi Bandung, Bandung, 40132, INDONESIA
Hennie Husniah, Department of Industrial Engineering, Langlangbuana University, Bandung, 40116, INDONESIA
Nisa Fadilah Fathul Ilmi, Program Study of Mathematics, Institut Teknologi Bandung, Bandung, 40132, INDONESIA

ID 704 Can Convalescent Plasma Transfusion Reduce the COVID-19 Transmission?
Asep K. Supriatna, Department of Mathematics, Padjadjaran University, Jatinangor, 45363, INDONESIA
Hennie Husniah, Department of Industrial Engineering, Langlangbuana University, Bandung, 40116, INDONESIA

4:00 pm – 5:45 pm, MONDAY

Thesis and Dissertation Competition

Room 3

Session Chair: Dr.

MASTERS THESIS COMPETITION

ID 213 Multifactor Algorithm for Evaluating Applicability of Preventive Maintenance: Case of ABInBev NamibiaGeser
Hityasha Okahandja, Otjozondjupa, Master of Industrial Engineering, Department of Mechanical and Marine Engineering, School of Engineering, Namibia University of Science and Technology, Namibia

DOCTORAL DISSERTATION COMPETITION

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ID 420  The Assessment and Characterization of Critical Thinking Skills of Upper Division Technology Students Using the Critical Thinking Assessment Test (CAT)
Matthew Harvey, Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, IA 50011, USA

TECHNICAL PRESENTATIONS

ID 698  Potential of Lean Tool of Value Stream Mapping (VSM) in Manufacturing Industries
Shakeel Ahmed Shaikh, and Muhammad Ali Khan, Department of Industrial Engineering & Management, Mehran University of Engineering & Technology, Jamshoro, 76062, Sindh, Pakistan

ID 699  Applications of Lean Six Sigma in Production Systems
Usama Khursheed Mughal, Muhammad Ali Khan, Pawan Kumar & Suneel Kumar, Department of Industrial Engineering & Management, Mehran University of Engineering & Technology, Jamshoro, 76062, Sindh, Pakistan

ID 700  Implementation of Overall Equipment Effectiveness (OEE) in Maintenance Management
Tahir Hussain Lakho, Muhammad Ali Khan, Shahryar Irfan Virk & Aamir Ali Indher, Department of Industrial Engineering & Management, Mehran University of Engineering & Technology, Jamshoro, 76062, Sindh, Pakistan

4:00 pm – 5:45 pm, MONDAY

COVID-19 Competition

Room 4

Session Chair: Dr.

ID 447  Covid-19 Time Series Data Quality Analysis (Case study at COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University)
Yuyun Hidayat, Dhika Surya Pangestu and Titi Purwandari, Department of Statistics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia
Sukono, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 436  E-Commerce Adoption Level in SMEs since Pandemic Covid-19 Case in Bogor, Indonesia
Kiki Oktora, Syafani Putri Lolita, Department of Management, Faculty of Economics Universitas Paukan, Bogor Indonesia
Verni Yuliaty Ismail and Muhammad Refki Novesar, Department of Management, Faculty of Economics Universitas Yarsi, Jakarta Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia

ID 453  Simulation of an extraction system using an Internet of Things (IoT) device for automatic control and alarm management for a Hospital Airborne Infectious Hospital Isolation Rooms (AIIR)
L.A. Roy, F.K Tekweme, Department of Mechanical Engineering, University of Johannesburg, Johannesburg, South Africa

ID 449  The Implementation of Tangent Control Chart for Identification of Countries that have Positive Covid-19 Cases Data Trend Similar to Indonesia
Yuyun Hidayat, Farhan Utama and Titi Purwandari, Department of Statistics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia
Sukono, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 533  Geospatial Dashboards for Mapping and Tracking of Novel Coronavirus Pandemic
Noralfisah Sulaiman, Sheikh Kamran Abid, Shliai Wei Chan, Umber Nazir, Nur Putri Najwa Mahmud, Siti Kursiah Kamalia Abdul Latib, Haridzah Fathini Muhammad Hafidz, Syamimi Afqah Binti Shahial and Siti Hawa Mat Sapuan, KANZU Research: Resilient Built Environment (RBE), Faculty of Technology Management and Business (FPTP), Universiti Tun Hussein Onn Malaysia (UTHM), 86400 Parit Raja Batu Pahat Johor, Malaysia
Terrence Fernando, THINKlab, University of Salford, United Kingdom

ID 534  MOBILISE-UTHM Resilient Tracker (RITTER) for Resilient Educational Communities in Malaysia
Noralfisah Sulaiman, Umber Nazir, Sheikh Kamran Abid, Siti Kursiah Kamalia Abdul Latib, Haridzah Fathini Muhammad Hafidz, Nur Putri Najwa Mahmud, KANZU Research: Resilient Built Environment (RBE), Faculty of Technology Management and Business (FPTP), Universiti Tun Hussein Onn Malaysia (UTHM) 86400 Parit Raja Batu Pahat Johor, Malaysia
Terrence Fernando, THINKlab, University of Salford, Greater Manchester, UK

5:45 – 6:00 pm – Break

December 7, 2020 (Monday) - Session: 6:00 – 7:45 pm

6:00–9:00 pm, MONDAY (Zimbabwe time)  Lean Six Sigma / Quality Control Competition  Room 1

10:00 am – 1:00 pm (Michigan time)  

Session Chair:

ID 262  Validation of the Lean Six Sigma Model for Higher Education Institutions through Implementation of Improvement Projects
David Guerrero, Cali, Valle del cauca, Colombia
David Rodrigo Guerrero Moreno
Juan Camilo García Jiménez

ID 658  Using Statistical Process Control to improve the quality in Utility plant
Investigating an Automotive FSA from a Quality Control Engineering Perspective
Dario DiPaola and Muqeeth Majid, A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering, Lawrence Technological University, Southfield, Michigan, MI 48075, USA

Improving Customer Satisfaction in an Automotive Manufacturing using Statistical Process Control
Rahul Yadav, Master of Science in Industrial Engineering, A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering Bhushan Babar, Master of Science in Mechanical Engineering, A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering Lawrence Technological University, Southfield, MI 48075, USA

Using Standardized Failure Analysis Techniques to Quickly Identify Claims from Vehicle Warranty Returns
Donovan Atkins, Department of Engineering Technology, Lawrence Technological University, Southfield, MI, USA
Yash Dubey, Department of Mechanical Engineering, Lawrence Technological University, Southfield, MI, USA

Improving Quality Control of Medical Devices
Gregory Riggs and Vishal Shah, A. Leon Linton Department of Mechanical Engineering, Lawrence Technological University, Southfield, MI, USA

Application of Statistical Process Control (SPC) in Food Processing Industry - Sausage Processing
Guojian Liang and Zhenbang Zhang, A. Leon Linton Department of Mechanical Engineering, Lawrence Technological University, Southfield, MI 48075, USA

Improving Quality of a Part in a Manufacturing Plant
Sanu Kuriakose Thomas and Hangkai Chen, Master of Engineering Graduate Students, Lawrence Technological University, Southfield, MI 48075, USA

Design of Experiments in Logistics of Auto Industry
Sisi Xie, Master of Science in Engineering Management, A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering Zexu Wang, Master of Science in Mechanical Engineering, A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering Lawrence Technological University, Southfield, MI 48075, USA

ID 559 Real Time Gesture-Controlled Mobile Robot using a Myo Armband
Khalid H. Tantawi, Enass Mohamed, Erkan Kaplanoglu, Austin Pemberton, Navar Pickard, Mike Dyer, Ethan Hickman, and Kaleb Thompson, Department of Engineering Management and Technology, University of Tennessee at Chattanooga, Chattanooga, TN 37403, USA

ID 546 Political polarisation on internet platforms: A case of Zimbabwean news portal chatrooms
Susan Makore and Sam Takavarasha Jr, Women's University in Africa, Harare, Zimbabwe
December 8, 2020 (Tuesday)

8:00 – 9:45 am, TUESDAY  Supply Chain and Entrepreneurship  Room 1
Session Chair: Muhammad Ikhsan Setiawan, Narotama University, Indonesia

ID 592  Information Access, Energy Demand, Supply, Access, Conversion and Trading
Francis Masawi, Energy and Information Logistics Group Limited (EIL), Harare, Zimbabwe

ID 593  Automotive assembly industry's Supply chain in the delocalization context: A critical review and an algorithm approach for modeling at a tactical level
Noreidine Sadki and Zoubir El Felsoufi, Laboratory of Mathematical Modeling and Control, Faculty of Sciences and Technologies of Tangier, Tangier, Morocco
Saniae Larioui, ENSIT Engineering School Morocco

ID 602  Job Rotation and Work Motivation on Employee Performance with Job Satisfaction as Intervening Variable Case Study on Cement Plant Partnership in East Java
Wulanndari Harjanti, School of Economic Mahardhika, Surabaya, East Java, Indonesia
Suhermin, School of Economic Mahardhika, Surabaya, East Java, Indonesia
Sri Rahayu, School of Economic Mahardhika, Surabaya, East Java, Indonesia
Roy Sumaryono, School of Economic Mahardhika, Surabaya, East Java, Indonesia
Miyi Dewi Suprihandari, School of Economic Mahardhika, Surabaya, East Java, Indonesia

ID 668  Community Behavior, Regulation, and Reliable Waste Infrastructure in Ngawi Regency to Improve the Quality of Life
Hery Subagio, Faculty of Engineering, Civil Engineering, Masters Study Program, Narotama University, Surabaya, Indonesia
F Roosian Edy Santosa, Faculty of Engineering, Civil Engineering, Masters Study Program, Narotama University, Surabaya, Indonesia
Muhammad Ikhsan Setiawan, Faculty of Engineering, Civil Engineering, Masters Study Program, Narotama University, Surabaya, Indonesia

ID 669  The Mediating Role of Knowledge Sharing in Relationship between Top Management Support and Employee performance
Tri Utoyo, Soebandi, and Marlia Widjajanti, Narotama University, Surabaya, Indonesia
Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia
Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Imu Ekonomi Mahardhika, Surabaya, Indonesia

ID 670  The Determinant Factors of Job Satisfaction and Employee Performance: Direct Compensation and Work Environment
Abdul Wahid, Agus Dwi Sasono, and Joko Setianto, Narotama University, Surabaya, Indonesia
Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia
Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Imu Ekonomi Mahardhika, Surabaya, Indonesia

ID 671  Legal Protection of Employment Relationships for Employee Relationships (Study at PT X)
Moh. Maruf and Riyan Sisiawan Putra and Inayatus Sholikhah, Department of Management, Nahdlatul Ulama University Surabaya, Indonesia

8:00 – 9:45 am, TUESDAY  Lean  Room 2
Session Chair: Isaac Chinhengo, National University of Science and Technology, Bulawayo, Zimbabwe

ID 400  A Case Study of Service Firm to Optimize the Cycle Time – Advanced Lean Techniques to Design Plant Layout
Tarani Kanth Kamma, Assistant Professor, Department of Mechanical Engineering Vignan Institute of Information Technology, Duvvada, Visakhapatnam-17, India
N V S Shankar, Associate Professor, Dept. of Mechanical Engineering Vignan Institute of information Technology, Duvvada, Visakhapatnam, India
Sarojini Jajimogala, Associate Professor, Department of Mechanical Engineering GITAM, Rushikonda, Visakhapatnam-45, India
Ch. Siva Rama Krishna, Associate Professor, Department of Mechanical Engineering Vignan Institute of information Technology, Duvvada, Visakhapatnam-17, India
ID 296  An Investigation On The Level Of Use Of Lean Principles In The Small And Medium Enterprises: The Case Of The South African Construction Industry: Literature Review
Davison Makondo and Forbes Chiromo, Department of Industrial Engineering, University of Johannesburg, Doornfontein, 2028, South Africa

ID 203  Application of Lean Tools in Planned Maintenance: Case Study of a Coal Handling Plant at a Thermal Power Station
Isaac Chinhengo, William M. Gorwondo and Blessed Sarea, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Bulawayo, Zimbabwe

Adefemi Onowole Adeodu, Department of Mechanical and Industrial Engineering, University of South Africa, Florida, South Africa
Mukondelezi Grace Kanakana-Katumba, Department of Mechanical and Industrial Engineering, University of South Africa, Florida, South Africa
Rendani Maladzhi, Department of Mechanical and Industrial Engineering, University of South Africa, Florida, South Africa

ID 197  Contradictions and Complements of Lean Administration and Digitalization
Christoph Szedlak, Kristin Wagner and Bert Leyendecker, University of Applied Sciences Koblenz, Faculty of Operations Management, Konrad-Zuse-Str. 1, 56075 Koblenz, Germany

ID 672  Implementation of Surgical Patient Safety by Nurses in Hospital
Nian Afrian Nuari, Nursing Departement, STIKES Karya Husada Kediri, Kediri, Indonesia
Sony Susanto, Civil Engineering Department, Kadiri University, Kediri, Indonesia

ID 197  Contradictions and Complements of Lean Administration and Digitalization
Christoph Szedlak, Kristin Wagner and Bert Leyendecker, University of Applied Sciences Koblenz, Faculty of Operations Management, Konrad-Zuse-Str. 1, 56075 Koblenz, Germany

8:00 – 9:45 am, TUESDAY  Energy  Room 3
Session Chair: Ifeanyi O. Jacobs, University of Nigeria Nsukka, Nigeria

ID 114  A Literature Review on Coal Gasification as Part Transition in SA Thermal Coal Power Generation
P. Rannditsheni, P. Naidoo and S.H. Connell, Department of Mechanical Engineering Science, University of Johannesburg, Johannesburg, RSA
D. Nicholls, Chairman, Nuclear Chapter, South African Institute of Electrical Engineers, Observatory, Johannesburg, RSA

ID 268  Analysis of a Two-Stage Variable Leg Geometry Solar Thermoelectric Generator
Chika Maduabuchi, Kewee Ejekakwue, Ifeanyi Jacobs, Agwu Ndukwe and Chiibgo Mgbereme, Department of Mechanical Engineering, University of Nigeria, Nsukka, Nigeria

ID 184  Application of Small Modular Reactors in Sub Saharan Africa
D. Nicholls, Chairman, Nuclear Chapter, South African Institute of Electrical Engineers, Observatory, Johannesburg, RSA
P. Naidoo and S.H. Connell, Department of Mechanical Engineering Science, University of Johannesburg, Auckland Park, Johannesburg, RSA

ID 401  Bioenergy Efficiency Evaluation for Sustainable Optimization in Sub-Saharan Africa
Katundu Imasiku, Africa Centre of Excellence in Energy for Sustainable Development, College of Sciences and Technology, University of Rwanda, Nyarugenge, 1108, Kigali, Rwanda
Valerie M. Thomas, School of Industrial and Systems Engineering, Georgia Institute of Technology, 755 Ferst Drive NW, Atlanta, GA 30332-0205, USA and School of Public Policy, Georgia Institute of Technology, 685 Cherry Street, Atlanta, GA 30332-0345, USA

ID 078  Design and Modelling of a Waste Hear Recovery System for a 250KW Diesel Engine for Cereal Drying
Moses Jeremiah Barasa Kabeyi and Oludolapo Akanni Olanrewaju, Department of Industrial Engineering, Faculty of Engineering and the Built Environment, Durban University of Technology, Durban, South Africa

ID 496  Embedded Data Acquisition Systems for the Logging and Monitoring of PV Parameters
Nkateko Mabunda, University of Johannesburg, Germiston, Gauteng, South Africa

ID 174  Comparative Experimental Performance Evaluation of Longitudinal and Transverse Four-Pass Soda Can Solar Air Heaters
Ifeanyi O. Jacobs, Chigbo A. Mgbereme, Agwu Ndukwe, Anthony O. Okoani and Nduim H. Ononiwu, Mechanical Engineering Department, University of Nigeria Nsukka, Nigeria

8:00 – 9:45 am, TUESDAY  Business Management  Room 4
Session Chair: Divya Bharathi, Ballari Institute of Technology and Management, Visveswaraya Technological University – Karnataka, India

ID 431  Customer Cluster Model to Determine Business Opportunity by Hierarchycal Method
Energ Tita Tosida, Gan Muyati, Department of Computer Science, Faculty of Mathematics and Natural Sciences, Universitas Paukan, Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 259  Determinant Factors of Consumer Preferences on Electronic Wallet Users in Bandung
Imanuddin Hasbi, Romat Saragih, Benny Kumia, Mahendra Fakhri and Alisha Gustiana Aini, School of Communication and Business Telkom University, Indonesia
ID 427  Determination of Agricultural Insurance Premium Prices Based on Rainfall Index with Formula Cash-or-Nothing Put Option
Agung Prabowo, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Jenderal Soedirman, Indonesia
Zahrahtul Amani Zakaria, Faculty of Informatics and Computing, Universiti Sultan Zainal Abidin (UNISZA), Kampus Tembila, Malaysia
Mustafa Mamat, Faculty of Informatics and Computing, Universiti Sultan Zainal Abidin (UNISZA), Gong Badak Campus, Terengganu, Malaysia
Sukono, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia
Abdul Taib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 220  Exploring the Dimensions using Exploratory Factor Analysis of Disruptive Factors and Inventory Control
Aamir Rashid Hashmi, Noor Aina Amirah and Yusnita Yusof, Faculty of Business and Management, Universiti Sultan Zainal Abidin, Kuala Terengganu, Malaysia

ID 234  E-Procurement Process Reengineering for Prohibiting the Corruption Initiatives by Proposing a Real-Time and Integrated Bidding Solution
M. Dachyar and Frisly Karenina, Industrial Engineering Department, Universitas Indonesia, Indonesia

ID 005  A Study on Tea Industry and Areca Nut Market – A Case Study on Enhancing the Possible Strategies to Increase Sales and Spread Brand Awareness for Areca Market in Karnataka, India
Divya Bharathi, Research Scholar, Dept. of Management Studies, Ballari Institute of Technology and Management, Visveswaraya Technological University – Karnataka, India
Dr G. P. Dinesh, Professor and Chairman, DOMS, Vijayanagara Sri Krishnadevaraya University - Karnataka, India

ID 005  A Study on Tea Industry and Areca Nut Market – A Case Study on Enhancing the Possible Strategies to Increase Sales and Spread Brand Awareness for Areca Market in Karnataka, India
Divya Bharathi, Research Scholar, Dept. of Management Studies, Ballari Institute of Technology and Management, Visveswaraya Technological University – Karnataka, India
Dr G. P. Dinesh, Professor and Chairman, DOMS, Vijayanagara Sri Krishnadevaraya University - Karnataka, India

Break 9:45 – 10:00 am

December 8, 2020 (Tuesday) - Session: 10:00 am – 11:45 am

10:00 am – 11:45 am, TUESDAY  Global Business Management Education  Room 1
Session Chair: Dr. Theo Tsokota, Midlands State University, Gweru, Zimbabwe

10:00 – 10:20 am (Tuesday, December 8)
Dr. Leonardo Frizziero, PhD Engineer
Senior Assistant Professor
DIN - Department of Industrial Engineering
ALMA MATER STUDIORUM University of Bologna
Viale Risorgimento, 2 – 40136 Bologna – Italy

10:20 – 10:40 am (Tuesday, December 8)
Ms. Tekla Manyika
Master's in Purchasing and Supply Management
Zimbabwe

10:40 – 11:00 am (Tuesday, December 8)
Dr. Crispen Karanda
ICDESIEC

11:00 – 11:20 am (Tuesday, December 8)
Gertjan van Stam
Transdisciplinary
Zimbabwe

Dynamism and located symbols: diversity in ubiquitous computing

11:20 – 11:40 am (Tuesday, December 8)
Dr. Theo Tsokota
Senior Lecturer
Department of Information Systems
Midlands State University
Gweru, Zimbabwe

11:40 – 12:00 am (Tuesday, December 8)
Dr. Rajeev Agrawal  
Associate Professor. Mechanical Engineering Department  
& Associate Dean (Research)  
Malaviya National Institute of Technology Jaipur  
(Rajasthan) INDIA - 302017  
Entrepreneurship Education

10:00 am – 11:45 pm, TUESDAY  
Data Analytics and Big Data  
Room 2

Session Chair: Lemma Lessa, School of Information Science, Addis Ababa University, Addis Ababa, Ethiopia

ID 318  
A Predictive Model For The Management Of Digital Marketing Within Social Media.  
Lynda Salem and Mohamed Tayeb Laskri, Computer Science Department, Badji Mokhtare University, Annaba, 23000, Algeria

ID 451  
Application of Statistical Process Monitoring and Control (SPC) for Quality Control of Front Axle Component in Truck Vehicle  
Yuyun Hidayat, Neneng Sunengsih, Lusyana Leonita and Titi Purwandari, Department of Statistics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia  
Sukono, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia  
Abdul Taibb Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

10:00 am – 11:45 pm, TUESDAY  
Sustainability and Green Systems  
Room 3

Session Chair: Yugowati Praharsi, Shipbuilding Institute of Polytechnic Surabaya, Surabaya, Indonesia

ID 324  
Sustainability Assessment in Aviation Industry: A Mini- Review on the Tools, Models and Methods of Assessment  
Eman R. Elhmoud, Engineering Management Program, College of Engineering, Qatar University, Doha, Qatar  
Adeeb A. Kutty, Mechanical and Industrial Engineering Department, College of Engineering, Qatar University, Doha, Qatar

ID 056  
Strategies for Sustainability of John Taolo Gaetsewe District Municipality Towns (South Africa) Post-Mining  
Bathusi Letsolo and Antoine F. Mulaba – Bafubiandi, Mineral Processing and Technology Research Centre, Department of Metallurgy, School of Mining, Metallurgy and Chemical Engineering, Faculty of Engineering and The Built Environment, University of Johannesburg, P.O Box 17911, Doornfontein, Johannesburg 2028, South Africa

ID 007  
Modeling of an Industrial Ecosystem at Traditional Shipyards in Indonesia for the Sustainability of the Material Supply Chain  
Yugowati Praharisi, Business Management Program, Shipbuilding Institute of Polytechnic Surabaya, Surabaya, Indonesia  
Muhammad Abu Jam'i'in, Electrical Engineering Department, Shipbuilding Institute of Polytechnic Surabaya, Surabaya, Indonesia  
Gaguk Suhardjito, Business Management Department, Shipbuilding Institute of Polytechnic Surabaya, Surabaya, Indonesia  
Hui-Ming Wee, Industrial and System Engineering, Chung Yuan University, Chung Li, Taiwan

ID 397  
The Lighter the Better: Weight Reduction in the Automotive Industry and its Impact on Fuel Consumption and Climate Change  
Gibson P Chirinda, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Bulawayo, Zimbabwe  
Stephen Matope, Department of Industrial Engineering, University of Stellenbosch, Stellenbosch, South Africa

ID 426  
Towards Energy Efficient Machining of Titanium Alloys – Ti6Al4V: Chip Morphology Impact on Specific Energy Use  
Nicholas Taysepsi, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Gwanda Road/Cecil Avenue, P. O. Box AC 939, Ascot, Bulawayo, Zimbabwe  
Rudolph F Laubscher, Mechanical Engineering Sciences Department, University of Johannesburg, Kingsway Campus, P.O Box 524, Auckland Park, 2006, Johannesburg, RSA  
Gert A Oosthuizen, Department of Industrial Engineering, University of Stellenbosch, Victoria Street, Private Bag X1, Matieland, Stellenbosch, RSA

ID 446  
Sustainable Machining of Ti-Alloys: Linking Cutting Parameters, Chip Morphology and Specific Cutting Energy during the Turning of Ti6Al4V  
Nicholas Taysepsi, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Gwanda Road/Cecil Avenue, P. O. Box AC 939, Ascot, Bulawayo, Zimbabwe  
Rudolph F Laubscher, Mechanical Engineering Sciences Department, University of Johannesburg, Kingsway Campus, P.O Box 524, Auckland Park, 2006, Johannesburg, RSA

ID 179  
The Lighter the Better: Weight Reduction in the Automotive Industry and its Impact on Fuel Consumption and Climate Change  
Gibson P Chirinda, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Bulawayo, Zimbabwe  
Stephen Matope, Department of Industrial Engineering, University of Stellenbosch, Stellenbosch, South Africa
10:00 am – 11:45 pm, TUESDAY

Transportation and Traffic
Room 4

Session Chair: Mamogege Desiree Sekgale, University of Johannesburg, South Africa

ID 351 A situational Analysis of Transport Usage in Zambia: A Modal Perspective of Railway Freight Services from 1960’s to 2018
Chikusela Sikazwe, Graduate School of Business, University of Zambia, Lusaka, Zambia
Erastus Mishengu Mwanaumo, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Great East Road, Lusaka, Zambia
Mwewa Mambwe, Department of Construction Management and Quantity Surveying, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa
Richard Kasongo Mwale, Graduate School of Business, University of Zambia, Lusaka, Zambia

ID 224 Intelligent Traffic Light Control
Mohammed A. Khasawneh and Anjali Awasthi, Concordia Institute for Information Systems Engineering, Concordia University, Montreal, Canada

ID 486 Pedestrian Performance Model Analysis in the City of Surabaya
Sri Wiwoho Mudjanarko, Florianus Roosian Edy Santosa and Rizal Bahaswan, Department of Civil Engineering, Narotama University, Surabaya, 60117, INDONESIA
Andrias Eko Adi Sutrisno, Department of Civil Engineering, Narotama University, Surabaya, 60117, INDONESIA
Mega Maharani Lestari, Department of Product Design, Institut Teknologi Sepuluh Nopember, Surabaya, 60117, INDONESIA
Firdaus Pratama Wiwoho, Department of Civil Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, 60117, INDONESIA

ID 336 Strategic Integrated Transport for Growth and Development Strategy in South Africa: A case of Rea Vaya BRT
Mamogege Desiree Sekgale and Nelson Sizwe Madonsela, Department of Quality and Operations Management, University of Johannesburg, Corner Kingsway and University Road, Auckland Park, South Africa

ID 322 The Effect of Transportation Infrastructure on Economic Development
Emmanuel Okechukwu Ejigu, Nelson Sizwe Madonsela and Adedotun Adetunla, Department of Quality and Operations Management, University of Johannesburg, Corner Kingsway and University Road, Auckland Park, South Africa

ID 206 The State of Rail and Road Route Transport Networks Integratedness in the City of Johannesburg: An Expose
Brightnes Risimati, Urban and Regional Planning Department, University of Johannesburg, City of Johannesburg, South Africa
Trynos Gumbo, Urban and Regional Planning Department, University of Johannesburg, City of Johannesburg, South Africa
James Chakwizira, Urban and Regional Planning Department, University of Venda, Venda, South Africa

11:30 – 12:00 Break

December 8, 2020 (Tuesday) - Session: 12:00 – 1:40 pm

12:00 – 1:40 pm, TUESDAY

Global Engineering Education I
Room 1

Session Chair: Dr. Şirin Tekinay, American University of Sharjah, UAE

12:00 – 12:20 pm (Tuesday, December 8) - Zimbabwe Time

Dr. Şirin Tekinay
Dean
College of Engineering
American University of Sharjah
Sharjah, UAE
Chair, Global Engineering Deans Council

12:20 – 12:40 pm (Tuesday, December 8) - Zimbabwe Time

Dr. Mohamed Essaaidi
Professor
Abdelmalek Essaaidi & Mohammed V Universities
Past Dean, ENSIAS
Past Director International Coop. at Ministry of General Affairs and Governance, Morocco
Rabat, Morocco

12:40 – 1:00 pm (Tuesday, December 8) - Zimbabwe Time
Prof. Hannes van der Walt  
Dean  
Faculty of Engineering  
Namibia University of Science and Technology  
Windhoek, Namibia  

ID 694  Undergraduate Engineering Education during COVID-19  
Johannes P van der Walt, Faculty of Engineering, Namibia University of Science and Technology, Windhoek, Namibia  
E Bernard J Siepker, Department of Mechanical and Marine Engineering, Namibia University of Science and Technology, Windhoek, Namibia  

1:00 – 1:20 pm (Tuesday, December 8) - Zimbabwe Time  

Dr. Funso Falade  
Professor of Civil Engineering  
University of Lagos, Nigeria  
Founding President and the current President of the African Engineering Education Association (AEEA)  

Engineering Education Pedagogy: Project-Based and Team-Based Learning  

1:20 – 1:40 pm (Tuesday, December 8) - Zimbabwe Time  

Dr. Gamal S. Ahmed  
Assistant Professor  
Najran University  
Saudi Arabia  
Past Professor, Researcher and Consultant at Ministry of Education, Egypt  

12:00 – 1:30 pm, TUESDAY  
E-Business/E-Service  
Room 2  
Session Chair:  

ID 345  Start Up E-Business ‘COFFEE FOR SALE’ Mobile Base Application  
Tri Pujadi, Faisal Fahmi and Surianto, Information Systems Departments - School of Information Systems, Bina Nusantara University, Jakarta, Indonesia  
Bachtiar H. Simamora, Department of Management Binus Business School, Bina Nusantara University, Jakarta, Indonesia  

ID 309  The Applications of Ordering Materials using Time Series Forecasting with CB Predictor  
Tri Pujadi, Yosafati Hulu and Tumar, Information Systems Departments - School of Information Systems, Bina Nusantara University, Jakarta, Indonesia  

ID 457  The Use of Search Engine Optimization on Local T-Shirt eCommerce Site: A Mini Longitudinal Study  
Faiza Renaldi, Angga Fantiya Hermawan and Agya Java Maulidin, Department of Informatics, Universitas Jenderal Achmad Yani, Indonesia  
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia  

ID 006  Applying Project and Programme Management Principles to the Manufacturing Competitiveness Enhancement Programme  
Pule Kholopane and Thakaramahalaha Lehohla, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa  

ID 122  Cost Analysis of Soot Blower Use for Boiler Maintenance at Sasol Secunda  
Purity Mimi Shandu, Darymy Vandi von Kallon and Goodwill Muyengwa, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa  

ID 196  The Relation between Renewable Energy Consumption and Economic Growth: The Case of 3 Mediterranean Countries  
Majd ALLAM, PhD Energy and Environment, Sapienza – University of Rome, Italy  
Domenico Borello, Associate Professor in Mechanical and Industrial Aerospace Department, Sapienza – University of Rome, Italy  
Raymond Bou Nader, PhD in mathematics, USJ – Beirut, Lebanon  

12:00 – 1:30 pm, TUESDAY  
Business Management  
Room 3  
Session Chair: Dr. Muhammad Ikhsan Setiawan, Narotama University, Indonesia  

ID 620  Brand Satisfaction, Brand Trust and Brand Loyalty  
Fathorrahman, Sekolah Tinggi Ilmu Ekonomi Asia, Malang, Indonesia  
Astrid Puspianingrum, Universitas Brawijaya, Malang, Indonesia  
Joko Suyono, Narotama University, Surabaya, Indonesia  

ID 611  The Mediating Role of Organizational Commitment in Relationship Between Organizational Communication on Knowledge Sharing  
Aldino Achmad Affandie, Andrie Sulistiyono, Dewi Mayasari, Narotama University, Surabaya, Indonesia  
Joko Suyono, Narotama University, Surabaya, Indonesia  
Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia
December 8, 2020 (Tuesday)
Session: 1:40 – 4:30 pm – Zoom Meeting Room 1

Keynote Speakers

1:40 – 2:00 pm Conference Chair Remarks and Welcome Address - Zoom Meeting Room 1

2:00 – 2:30 pm Opening OPENING KEYNOTE - Zoom Meeting Room 1

**Prof. Kuzvinetse Peter Dzvimbo**
Chief Executive Officer
Zimbabwe Council for Higher Education (ZIMCHE)
Harare, Zimbabwe

2:30 – 3:00 pm Keynote II - Zoom Meeting Room 1

**Dr. Esther T. Akinlabi**
Director
Pan African University for Life and Earth Sciences Institute (PAULESI)
African Union Commission
Ibadan, Nigeria

3:00 – 3:30 pm Opening Keynote III - Zoom Meeting Room 1

**Henk Viljoen**
Siemens – Xcelerator
Portfolio Development Manager Siemens Digital Industries Software
Pretoria, Gauteng, South Africa

3:30 – 4:00 pm Opening Keynote IV - Zoom Meeting Room 1

**Dr. Douglas Mboweni**
Group Chief Executive Officer
Econet Wireless Zimbabwe Limited
<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Topic</th>
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<tbody>
<tr>
<td>4:00 – 4:30 pm</td>
<td>Opening Keynote V - Zoom Meeting Room 1</td>
</tr>
</tbody>
</table>
| Dr. Robert Van Til | Chair and Pawley Professor of Lean Studies  
Department of Industrial and Systems Engineering  
Oakland University  
Rochester, Michigan, USA  
*ID 571 Lessons Learned Integrating Industry 4.0 into an Educational Program* |
| 4:30 – 4:45 pm | Break                                                                        |
|              |                                                                              |
| December 8, 2020 (Tuesday) - Session: 4:45 – 6:15 pm |                                       |
| 4:45 pm – 6:15 pm, TUESDAY | Industry Solutions / Industry 4.0 Room 1                                       |
| Session Chair: Dr. Tafadzwa Mudondo, Principal, Harare Polytechnic, Zimbabwe |                                        |
| 4:30 – 4:50 pm (Tuesday, December 8) - Zimbabwe Time | Dr. Eng. Ben Rafemoyo  
Chief Executive Officer  
Engineering Council of Zimbabwe |
| 4:50 – 5:10 pm (Tuesday, December 8) - Zimbabwe Time | Eriyeti Dube Murena  
University Lecturer  
Department of Industrial and Manufacturing Engineering  
National University of Science and Technology  
Zimbabwe |
| 5:10 – 5:30 pm (Tuesday, December 8) - Zimbabwe Time | Mr. Bathusi Makopo  
Business Process Analyst  
First National Bank of Botswana  
First Place, (CBD), Gaborone, Botswana |
| 5:30 – 5:45 pm (Tuesday, December 8) - Zimbabwe Time | Tassius Chigariro  
Managing Director  
Old Mutual Zimbabwe  
Harare, Zimbabwe |
| 5:45 – 6:00 pm (Tuesday, December 8) - Zimbabwe Time | Dr. Tafadzwa Mudondo, Ph.D.  
FZwiE. PrEng  
Principal  
Harare Polytechnic  
Zimbabwe |
| ID 580 | Towards a New philosophy for Repositioning, and Repurposing Technical Vocational Education and Training for Industrial Engineering and Operations Management Systems and Development in Africa: A Case of Zimbabwe Tafadzwa Mudondo, Principal, Harare Polytechnic, Zimbabwe |
| 4:45 pm – 6:15 pm, TUESDAY | Operations Research Room 2                                                     |
| Session Chair: Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Manila, Philippines |                                       |
| ID 153 | 2DOF Flexible Link Manipulator Model Simulation Inventor: Finite Element Analysis with Varying Payloads at the Tip |
ID 253  A Numerical Analysis of Airflow Efficiency of a Mine Ventilation Aircrossing
Johannes Selwana, Thokozani Justin Kunene and Lagouge Kwanda Tartibu, Mechanical and Industrial Engineering Technology Department, University of Johannesburg, Doornfontein Campus, Johannesburg 2028, South Africa

ID 118  Analysis of a Rectangular Actiflo Clarifier under Hydrostatic Pressure via FEA
P. Maqina, D.V.V Kallon, F. Tekweme and R. Mutyavavire, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 148  Enhancing Nanocrystalline Material Yield Strength during ARB Process by using Solute Atoms as Reinforcement
P.B. Sob, Department of Mechanical Engineering, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark, South Africa

ID 441  Identification of Factors Affecting the Mathematics Learning Difficulties of Students in Bandung Using a Linear Regression Model
Rahmi Wiganda Elastika, Master Study Program of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia. Sukono, Stanley Pandu Dewanto, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, INDONESIA. Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 466  Sales Maximization through Service Tier Introduction Utilizing LP Model and AHP-based After Sales Pursuit Strategy Selection
Pebbles Quimpo, Patrick Santos, Marien Tagaban and Romel C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

4:40 pm – 6:00 pm, TUESDAY  Entrepreneurship Education  Room 3
Session Chair: Dr. Sanjay Nadkarni, Director of Research & Innovation, The Emirates Academy of Hospitality Management, Dubai, UAE

4:40 – 5:00 pm (Tuesday, December 8)

Dr. Josu Takala
Professor, Industrial Management and Materials Management
University of Vaasa
Vaasa, Finland

Opportunity and Risk Evaluation of Technology and Knowledge Intensive Businesses

5:00 – 5:20 pm (Tuesday, December 8)

Samuel Olutuase, PhD, MBA, B.Sc. (Hons)
Lecturer & Academic Supervisor
(CPUT-Cape Town; UFH - East London; Unijos - Jos)
University of the Western Cape
East London, Eastern Cape, South Africa

Readiness of Business Management graduates for the workforce around the world in relation to ENTREPRENEURSHIP

5:20 – 5:40 pm (Tuesday, December 8)

Dr. Vinayak A. Drave, Ph.D., MBA, B.Sc.
Assistant Professor of Operations and Supply Chain Management
O.P. Jindal Global University (JGU)
Sonipat, Haryana, India

Management Entrepreneurship Education

5:40 – 6:00 pm (Tuesday, December 8)

Dr. Sanjay Nadkarni
Director of Research & Innovation
The Emirates Academy of Hospitality Management
Dubai, UAE

6:00 – 6:20 pm (Tuesday, December 8)

Md. Amanullah Kabir
Doctoral Fellow
Mechanical Engineering
Lamar University
A Project Based Learning, Collaboration and Challenges for Engineering Students

December 8, 2020 (Tuesday) - Session: 6:30 – 8:00 pm

6:30 – 8:00 pm, TUESDAY Engineering Education Room 1

Session Chair: Manuel Woschank, Chair of Industrial Logistics, Montanuniversitaet Leoben, Austria

ID 326 Ambidexterity in Industrial Engineering Technology Education
Ngaka Mosia, Department of Mechanical and Industrial Engineering, University of South Africa, Gauteng, Johannesburg, South Africa

ID 320 Competencies in the Digitalized Working Environment: A Concept for Engineering Education in Higher Education Institutions
Corina Pacher, Resources Innovation Center, Montanuniversitaet Leoben, Franz Josef-Strasse 18, 8700 Leoben, Austria
Manuel Woschank, Chair of Industrial Logistics, Montanuniversitaet Leoben, Erzherzog Johann-Strasse 3/1, 8700 Leoben, Austria

ID 383 Design of a Real Time Performance Monitoring and Evaluation System of Students during Lectures
Gamuchirai Mutubuki, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Bulawayo, Zimbabwe

ID 132 Finite Element Analysis on Multiple Axes of 3D Designs
D.W. Abbot, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa
D.V.V. Kallon, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 330 Harnessing Engineering Talent through Application Oriented Teaching and Learning In Universities of Technology
Ngaka Mosia, Department of Mechanical and Industrial Engineering, University of South Africa, Gauteng, Johannesburg, South Africa

ID 215 Conceptualization of the Lecture ‘Digitalization and Digital Transformation in Metal Forming’ based on Implications from Contemporary Teaching and Learning Theories
Benjamin J. Ralph, Chair of Metal Forming, Montanuniversitaet Leoben, Franz Josef-Strasse 18, 8700 Leoben, Austria
Corina Pacher, Resources Innovation Center, Montanuniversitaet Leoben, Franz Josef-Strasse 18, 8700 Leoben, Austria
Manuel Woschank, Chair of Industrial Logistics, Montanuniversitaet Leoben, Erzherzog Johann-Strasse 3/1, 8700 Leoben, Austria

6:30 – 8:00 pm, TUESDAY Healthcare Systems Room 2

Session Chair: Bupe Mwanza, University of Zambia

ID 390 Application of Machine Learning Techniques to Study Readmission of Patients with Cardio Vascular Diseases
Venkat Lellapalli, Mississippi State University, USA

ID 369 Human Factors Concern in Multicultural Classroom Dynamics
Aljohara Fahad Al-Saud, KSU, Saudi Arabia

ID 333 Analyzing Human Errors Responsible for a Pressure Vessel Failure
Mfundo Nkosi, University of Johannesburg, Johannesburg, Gauteng, South Africa

ID 252 Study of Electromyography Sensor Attachment Locations for Designing of Smart-fitness Clothing
Yong-Ku Kong, Kyeong-Hee Choi, Chae-Won Park, Seoung-Yeon Kim, Min-Jung Kim and Min-uk Cho, Department of Industrial Engineering, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Suwon-si, Gyeonggi-do 16419, Korea

ID 423 The Relationship between Risk Management and Safety, Health, Environment and Quality Policy Implementation among Zambian Contractors
Bupe Mwanza, University of Zambia and University of Johannesburg, Gauteng, South Africa

ID 513 Microclimate Requirements for Theatre Rooms: Case Study for Tertiary Hospitals in Zimbabwe
Winnie Mutenhambudzo 1 and Tawanda Mushiri 2
1, 2 Department of Mechanical Engineering, University of Zimbabwe, Mt Pleasant, Harare, 263, Zimbabwe
2 Senior Research Associate, Quality and Operations Department, University of Johannesburg, Bunting Road Campus, Auckland Park 2006, P.O Box APB524, Johannesburg, South Africa

6:30 – 8:00 pm, TUESDAY Engineering Management Room 3

Session Chair: Henrique Ewbank de M. Vieira, Facens University, Sorocaba, São Paulo, Brazil

ID 430 Student Attendance Monitoring and Evaluation System Using Radio Frequency Identification
Dian Kartika Utami, Department of Information System, Pekuan University, Indonesia
Akbar Sugih Miftahul Huda, Department of Computer Technologies, Pekuan University, Indonesia

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ID 483  Naïve Bayes Classifier for Predicting Success Factors of Engineering Education: Belgian Example
Saeka Rahman, Department of Computer Science and Engineering, International Standard University, Dhaka, Bangladesh

ID 096  The Gap between Matric Pass Requirements and Entrance to Engineering Education
Baloyi Themba Amukelani and Muyengwa Goodwel, Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa

ID 089  System Analysis of Portable Water Shortage in the Mpumalanga Province of South Africa
Motshweba Mathakalala and Daramy Vandi Von Kallon, Mechanical Engineering Department, University of Johannesburg, Johannesburg, South Africa

ID 090  Systems Dynamic of Portable Water Shortage in the Limpopo Province of South Africa
Motshweba Mathakalala and Daramy Vandi Von Kallon, Mechanical Engineering Department, University of Johannesburg, South Africa

ID 231  The Decision Model of Internet of Things (IoT) Solutions for Healthcare based on Risk and Challenge Factors
M Dachyar and Nabila Alia Zahra, Industrial Engineering Dept, Universitas Indonesia, Depok, Indonesia

ID 572  An investigation into the synergy of the root cause analysis and Poka Yoke at suppliers of Toyota South Africa Manufacturing (TSAM) and a cable manufacturing company in South Africa
John Zvidzayi, South Africa

6:30– 800 pm, TUESDAY Energy Room 4
Session Chair: Dr. Amir J. Majid, College of Engineering and Information Technology, University of Science and Technology of Fujairah, UAE

ID 115  Understanding South Africa's Independent Power Producer Programme
P. Naidoo and S.H. Connell, Department of Mechanical Engineering Science, University of Johannesburg, Auckland Park, Johannesburg, RSA
D. Nicholls, Chairman, Nuclear Chapter, South African Institute of Electrical Engineers, Observatory, Johannesburg, South Africa

ID 077  Wellhead Technology as a Solution to Long Gestation Period in Geothermal Power Development
Moses Jeremiah Barasa Kabeyi and Oludolapo Akanni Olanrewaju, Department of Industrial Engineering, Faculty of Engineering and the Built Environment, Durban university of Technology, Durban, SA

ID 263  Lifetime Extension of Distributed Power Networks by Evaluating the Joint Gaussian Probabilities of the Power Coverage of Generators to Load Centers Demand
Amir J. Majid, Ph.D., College of Engineering and Information Technology, University of Science and Technology of Fujairah, Fujairah, 2202, UAE

ID 495  Battery Size Optimization Strategies for the Solar Powered Led Lights
Nkateko Mabunda, University of Johannesburg, Germiston, Gauteng, South Africa

ID 681  Convolutional Neural Networks for Solid Waste Segregation and Prospects of Waste-to-Energy in Ghana
Rukiya Abubakar, Electrical/Electronics Engineering, Ghana Technology University College, Accra, Ghana
K.M Sharath Kumar, Department of Management Studies, M.S., Ramaiah School of Advanced Studies, Bangalore, India
Amevi Acakpovi, Electrical/Electronics Engineering, Accra Technical University, Accra, Ghana
Nana Agyeman Prempeh, Procurement and Marketing, Ghana Technology University College, Accra, Ghana
Jeremiah Tetteh, Ghana Technology University College, Accra, Ghana
Ethel Seyram Kumassah, Ghana Technology University College, Accra, Ghana

ID 596  Performance Evaluation of some selected Mediums Wind Energy Conversion system for Wind Power Generation at Anyigba, Nigeria
Saleh, A. U., Electrical Engineering Department, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia
Suleiman Abdurahman, Centre for Atmospheric Research, National Space Research and Development Agency, Prince Audu Abubakar University Anyigba, Kogi, Nigeria
Haruna, Y. S., Electrical and Electronics Engineering Department, Abubakar Tafawa Balewa University Bauchi, Bauchi, Nigeria

Break 8:00 – 8:15 pm

December 8, 2020 (Tuesday) - Session: 8:15 – 10:00 pm

8:15 pm – 10:00 pm, TUESDAY Business and Manufacturing Operations Room 1
Session Chair:

ID 016  Approche Fiabilité et Maintenabilité Système
Anouar Halliou and Brahim Herrou, Laboratoire des Techniques Industrielles, Centre d'Etudes Doctorales en Sciences et, Techniques de l'Ingénieur - Faculté des Sciences et Techniques de Fès, Université Sidi Mohamed Ben Abdellah, Fès, Morocco
### ID 116  
**A3 Problem Solving: A Case of Assembly Line Downtime**  
K. Kanyinda, Department of Industrial Engineering, Durban University of Technology, Durban, South Africa  
I. J. Lazarus, Department of Physics, Durban University of Technology, Durban, South Africa  
O. A. Olanrewaju, Department of Industrial Engineering, Durban University of Technology, Durban, South Africa  

### 8:15 pm – 10:00 pm, TUESDAY  
**Global Engineering Education Panel Session**  
Room 2  
Panel Chair: Dr. Wilson R. Nyemba, Department of Mechanical Engineering, University of Zimbabwe  
Panel Speaker I  
Panel Speaker II  
Panel Speaker III

### ID 180  
**Electrification through Renewable Resources in a Rural Area in Nigeria: Design, Optimization and Techno-Economic Evaluation**  
Aliyu Adamu Baba1, 2, Md Mizanur Rahman 1, and Aminuddin Saat 1  
1 School of Mechanical Engineering, Faculty of Engineering, University Technology Malaysia, 81310 Johor Bahru, Johor, Malaysia  
2 Department of Mechanical Engineering, Federal Polytechnic Mubi, Adamawa State, Nigeria

### ID 387  
**Energy productions using combined cycle gas and vapor at Maputo Thermal Power Plant**  
Miguel Meque Uamusse and Alberto Júlio Tsamba, Faculdade de Engenaria, Universidade Eduardo Mondlane, P.O.Box 257, Av de Mocambique, km 1.5, Maputo, Mozambique

### ID 207  
**Flagging Appropriate Relay Alarms in SCADA Relay Alarm Monitoring & Analysis Systems**  
Judy Finny and Aldo McLean, Engineering Management & Technology Department, University of Tennessee at Chattanooga, Chattanooga, TN 37403, USA

### ID 201  
**Investigations into Solar Powered Stirling Engines for Electricity Generation**  
P. Khoza, P. Naidoo and S.H. Connell, Department of Mechanical Engineering Science, University of Johannesburg, Auckland Park, Johannesburg, South Africa

### ID 254  
**Numerical Analysis of Vertical Axis Wind Turbine Performance at Varied Angle-of-Attack**  
Thokozani Justin Kunene, Mossa Maculove and Lagouge Kwanda Tartibu, Mechanical & Industrial Engineering Technology Department, University of Johannesburg, Doornfontein Campus, Johannesburg, South Africa

### ID 384  
**Opportunities for Energy Savings Based on Behavioural Patterns of Residents in Freetown Sierra Leone**  
B. Kamara, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, South Africa  
S. Kamara, Department of Mechanical and Industrial Engineering, Fourah Bay College, University of Sierra Leone, Sierra Leone  
J.A.S. Redwood-Sawyerr, Department of Electrical Engineering, Fourah Bay College, University of Sierra Leone, Sierra Leone  
D.V.V Kallon, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, South Africa

### ID 269  
**Optimal Sitting of Interconnected Mini-Grid in Electricity Distribution Network Using Interval Type-2 Fuzzy Analytic Hierarchy Process**  
Akintunde K. Akinlabi, Department of Industrial and Production Engineering, University of Ibadan, Ibadan Nigeria  
Victor O. Oladokun, Department of Industrial and Production Engineering, University of Ibadan, Ibadan Nigeria

### 8:15 pm – 10:00 pm, TUESDAY  
**Waste Management**  
Room 4  
Session Chair: Maximiliano Arroyo Ulloa, Industrial Engineering Department, Santo Toribio of Mogrovejo Catholic University, Chiclayo, Peru

### ID 361  
**On Suitable Solid Waste Characterization Method for Nigerian University Campuses**  
Collins O. Ugwu, Department of Mechanical Engineering, University of Nigeria, Nsukka, Nigeria  
Paul A. Ozor, Department of Mechanical Engineering, University of Nigeria, Nsukka and Department of Quality and Operations Management University of Johannesburg, South Africa

### ID 219  
**Plastic waste management in South Africa**  
Unathshilidzi Benedictus Khangale, Department of Quality and Operations Management, Faculty of Engineering and the Built Environment, University of Johannesburg, Doornfontein Campus, 2092, South Africa  
Paul Amaechi Ozor, Department of Quality and Operations Management, Faculty of Engineering and the Built Environment, University of Johannesburg, Doornfontein Campus, 2092, South Africa  
Charles Mbohwa, Department of Quality and Operations Management, Faculty of Engineering and the Built Environment, University of Johannesburg, Doornfontein Campus, 2092, South Africa

### ID 335  
**Potential Role of Sugar Mills in the Peruvian Development**
December 9, 2020 (Wednesday)

8:00 – 9:45 am, WEDNESDAY  Business and Manufacturing Operations  Room 1

Session Chair: Dr. Muhammad Ikhsan Setiawan, Narotama University, Indonesia

ID 617  The rise and rise of Financial Technology: Lessons for Industrial Engineering
Nqobile Munzara, Legal Practitioner, Conveyancer and Notary Public, Zimbabwe

ID 613  Analysis of the Effect of Work Discipline and Reward on Work Performance through Work Motivation
Asrining Yusshinta, Arasy Alimudin, and Eko Wahyu Purwanto, Narotama University, Surabaya, Indonesia
Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia
Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

ID 619  Strategy of Performance Development of Indonesia Aerodrome Inspector in 2020
Eko Wahyu Purwanto, Arasy Alimudin, and Abdul Wahid, Narotama University, Surabaya, Indonesia
Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia
Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

ID 621  The Mediating Role of Knowledge Sharing in Relationship Between Organizational Culture and Employee Performance
Fuji Setianto, Marlia Widjajanti, and Tri Utoyo, Narotama University, Surabaya, Indonesia
Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia
Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

ID 622  The Mediating Role of Job Satisfaction in Relationship Between Organizational Justice and Employee Performance
Marlia Widjajanti, and Fuji Setianto, Narotama University, Surabaya, Indonesia
Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia
Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

ID 624  Antecedents of Job Performance at the Ship Design Company in Surabaya
Hindah Mustika, Universitas Airlangga, Surabaya, Indonesia and Sekolah Tinggi Ilmu Ekonomi Indonesia Surabaya, Indonesia
Mateus Ximenes, Institute of Business (IOB), Faculty of Economics and Business, Dili East Timor
Bambang Hadi Santoso Dwidjosumarno, Sekolah Tinggi Ilmu Ekonomi Indonesia Surabaya, Indonesia

8:00 – 9:45 am, WEDNESDAY  Information Systems and Information Technology  Room 2

Session Chair: Modisha Maribe, University of the Witwatersrand, Johannesburg, South Africa

ID 092  Applying Technology to Educational Delivery and its Management: Lesson from Nigeria
Babatunde Joel TODOWEDE, Lagos State University, Badagry Expressway, Lagos, Nigeria

ID 455  Cloud-Based Online Ordering Platform to Reduce the Number of Queues at Local Restaurants
Faiza Renaldi, Christine Chlyw Nova and Agya Java Maulidin, Department of Informatics, Universitas Jenderal Achmad Yani, Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 084  Disruptive Teaching and Learning and Assessing Engineering Students during a Pandemic Situation
Antoine Mulaba – Bafubndi, Mineral Processing and Technology Research Centre, Department of Metallurgy, School of Mining, Metallurgy and Chemical Engineering, Faculty of Engineering and The Built Environment, University of Johannesburg, 37 Nind Street Doornfontein, Johannesburg, 2028, South Africa

ID 214  Factors affecting the Level of ICT innovation in Tanzania
Edison Wazoel Lubua, Senior Lecturer and Certified Information Systems Auditor, Department of Informatics, Institute of Accountancy Arusha,
### PARALLEL SESSIONS

#### December 7-10, 2020

**Room 3**

**8:00 – 9:45 am, WEDNESDAY**

**Operations Research**

Session Chair: Gideon Halevi, retired - Director of CAD/CAM R&D Center at IMI Corporation, Technion Haifa, Israel

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<td>458</td>
<td>Integrating Travel Booking Management System Services Using Rest-API</td>
<td>Faiza Renaldi, Hary Suryanto, Agya Java Mauldin and Irma Santikarama, Department of Informatics, Universitas Jenderal Achmad Yani, Indonesia, Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia</td>
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<td>505</td>
<td>Real-Time Simulation of Actual Systems for Live Continuous Research</td>
<td>Philemon Khoza and Antoine F. Mulaba – Bafubiandi, Mineral Processing and Technology Research Centre, Department of Metallurgy, School of Mining, Metallurgy and Chemical Engineering, Faculty of Engineering and The Built Environment, University of Johannesburg, P.O Box 17911, Doornfontein, Johannesburg 2028, South Africa</td>
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<td>233</td>
<td>The Impact of Customer Focused Innovative Technologies on Passenger Growth for a Domestic Low-cost Carrier Airline</td>
<td>Modisha Manbe, School of Mechanical, Industrial and Aeronautical Engineering, University of the Witwatersrand, Johannesburg, South Africa, Bernadette Sunjika, School of Mechanical, Industrial and Aeronautical Engineering, University of the Witwatersrand, Johannesburg, South Africa</td>
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**Room 4**

**8:00 – 9:45 am, WEDNESDAY**

**Logistics and Supply Chain**

Session Chair: Himadri Sen Gupta, Military Institute of Science and Technology (MIST), Dhaka - 1216, Bangladesh

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<td>A Review on Improving Performance Through Digital Transformation: A study of Best Technologies and Key Success Factors</td>
<td>M. F. M. Fairoos, Department of Industrial Management, University of Kelaniya, Kelaniya 11600, Sri Lanka, W. A. M. Niranga, Lecturer, Department of Industrial Management, University of Kelaniya, Kelaniya 11600, Sri Lanka, R. Wickramaratne, Senior lecturer, Department of Industrial Management, University of Kelaniya, Kelaniya 11600, Sri Lanka</td>
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<td>458</td>
<td>Drivers and Barriers of Supply Chain 4.0 Implementation</td>
<td>Stella Nwakachi Nwagba Adare and Shahryar Soroooshian, Department of Business Administration, University of Gothenburg, Gothenburg, Sweden</td>
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<td>458</td>
<td>The Impact of Workspace Design on Office Managers/Secretaries Satisfaction and Productivity: A Case Study of Federal Polytechnic Kaura Namoda, Zamfara State</td>
<td>Maikudi Shehu Musawa, Department of Office Technology and Management, Federal Polytechnic, Kaura Namoda, Zamfara State, Kamilah Ahmad, Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia</td>
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<td>458</td>
<td>The Moderating Effect of Firm Characteristics on The Relationship Between Financial Sustainability and Access to Finance Among SMEs in Malaysia</td>
<td>Ahmed M. Ghaithan, King Fahd University of Petroleum &amp; Minerals, Construction Engineering and Management Department, Dhahran 31261, Saudi Arabia, Rakesh Kumar Phanden, Department of Mechanical Engineering, Amity School of Engineering and Technology, Amity University Uttar Pradesh, Sector – 125, Noida, UP, India</td>
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Patrick Toyo and Nelson Sizwe Madonsela, Department of Quality and Operations Management, University of Johannesburg, Corner Kingsway and University Road, Auckland Park, South Africa

ID 258  Enhancement of Supply Chain Performance by Data Analytics
Himadri Sen Gupta, A.I.M Johurul Islam, MD. Mushfiquzzaman and B M Adnan Rahman, Department of Industrial and Production Engineering, Military Institute of Science and Technology (MIST), Dhaka - 1216, Bangladesh

9:45 – 10:00 am Break

December 9, 2020 (Wednesday) - Session: 10:00 – 11:45 am

10:00 am – 11:45 am, WEDNESDAY  Global Engineering Education II  Room 1
Session Chair: Prof. Oswell Hapanyengwi, University of Zimbabwe

10:00 – 12:20 pm (Wednesday, December 9) - Zimbabwe Time

Prof. Oswell Hapanyengwi
Dean: Faculty of Education
University of Zimbabwe
Mt Pleasant, Harare, Zimbabwe

10:20 – 10:40 pm (Wednesday, December 9) - Zimbabwe Time

Dr. Maxwell Chanakira, Ph.D.
Pro Vice Chancellor
Harare Institute of Technology
Harare, Zimbabwe

10:40 – 11:00 pm (Wednesday, December 9) - Zimbabwe Time

Prof. Dr. Ripu Ranjan Sinha
Professor and Pro-Vice Chancellor (Asia)
Commonwealth Vocational University Tonga
Tongatapu, Tonga, India

11:00 – 11:20 pm (Wednesday, December 9) - Zimbabwe Time

Dr. Noha Mostafa
Assistant Professor of Industrial Engineering and Management
The British University in Egypt
Cairo, Egypt

11:20 – 11:40 am (Wednesday, December 9) - Zimbabwe Time

Dr. Rex Aurelius C. Robielos
Dean
School of Industrial Engineering and Engineering Management
Mapua University
Intramuros, Manila, Philippines

*Industrial Engineering Education in the Philippines: Issues and Concerns*
### PARALLEL SESSIONS

**December 7-10, 2020**

**10:00 am – 11:45 am, WEDNESDAY**  
**Operations Research**  
Room 2

**Session Chair:** Patrick Dallasega, Free University of Bozen-Bolzano, Bozen, Italy

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<td>467</td>
<td>Prediction of Credit Card Status Changes using Markov Analysis</td>
<td>Reynald M. Rodriguez and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines</td>
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<td>462</td>
<td>Revenue Maximization and Manpower Allocation of Internet Service Provider using Linear Programming</td>
<td>Eloizza T. Caidamo, Kristel Joy A. Bergantiños and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines</td>
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| 359  | Mathematical Programming Modeling and Analysis of Covenant University Supermarkets System for Profit Optimization | Michael C. Agarana, Department of Mathematics, Covenant University, Ota, Nigeria and Department of Quality and Operations Management, University of Johannesburg, Johannesburg, South Africa  
Ezinne C. Erondu, Department of Industrial and Applied Mathematics, Université Grenoble Alpes  
Lawrence C. Obi, Department of Mathematics, Covenant University, Ota, Nigeria  
Onajaonya C. Agubo, Department of Political Science and International Relations, Covenant University, Ota, Nigeria  
Tolulope O. Oladimeji, Department of Computer Science and Information System, Covenant University, Ota, Nigeria |
| 463  | Utilization of Analytic Hierarchy Process (AHP) with Linear Regression for Determining Category to Maximize Potential Revenue through View Count | Kevin Joseph de Guzman and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines |
| 443  | Adomian Decomposition Method and the New Integral Transform           | Ira Sumiati, Master Program of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia  
Sukono, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia  
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia |

**10:00 am – 11:45 am, WEDNESDAY**  
**Industrial and Manufacturing**  
Room 3

**Session Chair:** Sahani Rathnasiri, Sustainable Industries and Livable Cities, Victoria University, Melbourne, Australia

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<td>170</td>
<td>Ergonomic Assessment for a Convenience Store Assistant</td>
<td>Nor Suhada Abdullah, Koay Mei Hye, Siti Nur Amalina Mohd Halidi, Hamid Yusoff, Ahmad Sufian Abdullah, Halim Ghafar, and Aliff Farhan Mohd Yamin, Faculty of Mechanical Engineering, Universiti Teknologi MARA, Cawangan Palau Pinang, Campus Pematang Pauh, Palau Pinang, Malaysia</td>
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| 133  | Finite Element Analysis of a Simulated Object vs 3D Printed Object    | D.W. Abbot, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa  
D.V.V. Kallon, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa |
| 222  | Modal and Stress analysis of Centrifugal pump impeller produced with Al-3.7%Cu-1.4%Mg-1.5%wtRice husk ash nanoparticles composite | Paul. A Ozor 1, 3, and Victor. S Aigbodion 1, 2  
1 Faculty of Engineering and Built Environment, University of Johannesburg, Auckland Park, 2006, South Africa  
2 Energy materials research group, Department of Metallurgical and Materials Engineering, University of Nigeria, Nsukka, Nigeria  
3 Department of Mechanical Engineering, University of Nigeria, Nsukka, Nigeria |
| 198  | Optimization of Cutting Parameters in Turning of AISI 201 Stainless Steel to Reduce Chip Reduction Coefficient in both Dry and Wet Condition | Tareq Ahmad, Toukir Ahmed, Md. Didarul Alam and Md. Ariful Islam, Department of Industrial & Production Engineering, Rajshahi University of Engineering & Technology, Rajshahi-6204, Bangladesh |
| 705  | Two-dimensional Maintenance Service Contract Ensuring Availability using Non-periodic Imperfect Preventive Maintenance | Nur F. Sa'idah, Doctoral Program in Industrial Engineering and Management, Institut Teknologi Bandung, Bandung, 40132, INDONESIA  
Udjiana S. Pasaribu, Study Program of Mathematics, Institut Teknologi Bandung, Bandung, 40132, INDONESIA  
Andy Cakravastia, Study Program of Industrial Engineering, Institut Teknologi Bandung, Bandung, 40132, INDONESIA  
Hennie Husniah, Department of Industrial Engineering, Langlangbuana University, Bandung, 40116, INDONESIA  
Bermawi P. Iskandar, Study Program of Industrial Engineering, Institut Teknologi Bandung, Bandung, 40132, INDONESIA |
| 396  | Impact of Accounting Methods on Supply Chain Contracts: Analysis Based on E-tailer Supply Chain Costs | Sahani Rathnasiri and Sardar Islam, Sustainable Industries and Livable Cities, Victoria University, Melbourne, Australia  
Pritee Ray, Department of Operations Management, Indian Institute of Management Ranchi, Jharkhand, India |
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<th>ID</th>
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| 411 | Design of a system that can harvest essential oils from plants for pharmaceutical uses | Kudakwashe Kusena and Tawanda Mushiri, Industrial and Mechatronics Engineering Department, Faculty of Engineering and the Built Environment, University of Zimbabwe, 630 Churchill Avenue, Harare, Zimbabwe  
Lameck S. Chagonda, Pharmacy Department, Faculty of Medicine and Health Sciences, University of Zimbabwe, Harare, Zimbabwe |
| 181 | Health 2.0: A Digital Platform to Transform Gweru District Health System | M Shumba and S Mhlanga, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Midlands, Zimbabwe |
| 010 | Improvement of Hospital Airborne Infectious Isolation Rooms using IoT technology | Lance Abraham Roy, Vice Chairman South African Federation Hospital Engineers KZN and Post Grad Student University Johannesburg, Consulting Health Care Engineer- Al Engineers, South Africa |
| 419 | Aluminium and Mercury Preservatives Accumulated In the Brain from Vaccines | Kelsey Catania and Carrieann Towne, Department of Biomedical Engineering, Lawrence Technological University, Southfield, MI 48075, USA  
George Pappas, Ph.D. and Michael McGrath, OD, Electrical and Computer Engineering Department, Lawrence Technological University, Southfield, MI 48075, USA |
| 266 | Adaptation of Hybrid Strategy in Healthcare Supply Chain | Himadri Sen Gupta, Azraf Shahriar Sami, Md. Istiak Habib and Hasib Ur Rahman, Department of Industrial and Production Engineering, Military Institute of Science and Technology (MIST), Dhaka - 1216, Bangladesh |
| 329 | Application of big data strategies for process optimization in a Healthcare environment [A case of patient data management in Hospital] | Ngaka Mosia, Department of Mechanical Engineering and Industrial, University of South Africa, Gauteng, Johannesburg, South Africa |
|    |                                                                  | 11:45 am – 12:00 pm Break                                                                     |
|    |                                                                  | 12:00 am – 11:45 am, WEDNESDAY Healthcare Systems Room 4 | Session Chair: Ngaka Mosia, Department of Mechanical Engineering and Industrial, University of South Africa, Johannesburg, South Africa |
|    |                                                                  | 10:00 am – 11:45 am, WEDNESDAY Global Engineering Education III Room 1 | Session Chair: Dr. Adedeji Badiru, Air Force Institute of Technology, Wright-Patterson AFB, Ohio, USA |
| 12:00 | 1:40 pm, WEDNESDAY                                            | Global Engineering Education III Room 1                                                      | 12:00 – 12:20 pm (Wednesday, December 9) - Zimbabwe Time |
| 12:20 | 12:40 (Wednesday, December 9) - Zimbabwe Time                  | Dr. William Msekiwa Goriwondo                                                            | Dean, Faculty of Engineering  
National University of Science and Technology  
Bulawayo, Zimbabwe |
| 12:40 | 1:00 (Wednesday, December 9) - Zimbabwe Time                   | Dr. Yudi Samyudia                                                                      | Dean, School of Applied Science, Technology, Engineering and Mathematics  
Universitas Prasetiya Mulya  
Jakarta, Indonesia |
| 1:00 | 1:20 (Wednesday, December 9) - Zimbabwe Time                   | Thamsanqa Maqubela                                                                      | CEO  
SA Council for Graduates Cooperative  
Cape Town, South Africa |
| 1:20 |                                                                  | Dr. Adedeji Badiru                                                                        | Dean, Graduate School of Engineering and Management  
Air Force Institute of Technology  
Wright-Patterson AFB, Ohio, USA |
1:20 pm – 1:40 pm (Wednesday, December 9) - Zimbabwe Time

Mrs. Barbara Nhemachena
Quality Promotion and Development Officer
Zimbabwe Council for Higher Education (ZIMCHE)
Zimbabwe

12:00 – 1:30 pm, WEDNESDAY  Industry 4.0  Room 2
Session Chair: Imane Benkhati, Casablanca, Grand Casablanca, Morocco

ID 297  Era of Digital Technology: Analysis of factors contributing to economic growth and sustainability
Ayanda Ndou and Nelson Sizwe Madonsela, Department of Quality and Operations Management, University of Johannesburg, Corner Kingsway and University Road, Auckland Park, South Africa
Bhekisipho Twala, Faculty of Engineering and Built Environment, Durban University of Technology, South Africa, Greyville, Durban, RSA

ID 388  Fourth Industrial Technology (4IR) for Safe Mining: "Collision Avoidance Technology"
O.J Kaelo; Dr D Madyira and W.R Nyemba, Department of Mechanical Engineering Science, Faculty of Engineering and the Built Environment, University of Johannesburg, Auckland Park 2006, Johannesburg, South Africa
Department of Mechanical Engineering, University of Zimbabwe, P O Box MP 167, Mount Pleasant, Harare, Zimbabwe

ID 413  Potential pre-treatment and processing routes for recovery of gold from complex (refractory) gold ores. A review
Nancy.R. Mabwe, Department of Mining, Chemical and Metallurgical Engineering, University of Zimbabwe, Mt Pleasant, Harare, Zimbabwe

ID 402  Role of Industry 4.0 in Supplier Selection
Priyanka Verma and G S Sagar, NITIE - National Institute of Industrial Engineering, Mumbai, India
Vijaya Dixit, Indian Institute of Management, Ranchi, India

ID 415  Smart Sustainable Manufacturing: From Literature Review to a Green Framework
Imane Benkhati, Casablanca, Grand Casablanca, Morocco

ID 549  Collision Avoidance Technology The use of Fourth Industrial Revolution (4IR) for Safe Mining
O.J Kaelo and D Madyira, Department of Mechanical Engineering Science & Technology, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

12:00 – 1:30 pm, WEDNESDAY  Product Development and Optimization  Room 3
Session Chair: Peter Gabriel C. Buot, School of Mechanical and Manufacturing Engineering, Mapua University, Intramuros, Manila, Philippines

ID 492  Development of Portable Chiller for Carabao Milk with Independent Cooling System using Thermoelectric Effect
Christian Henry D. Escolar, Adrian Michael N. Lee, Ian M. Matibag and Mark Christian E. Manuel, PhD., School of Mechanical and Manufacturing Engineering, Mapua University, Intramuros, Manila, Philippines
Ma. Janice J. Gumasing, School of Industrial Engineering and Management, Mapua University, Intramuros, Manila, Philippines

ID 494  Development of Molding Machine for Petal-Shape Gum Paste
Adam F. Rombaoa and Edward B.O. Ang, School of Mechanical and Manufacturing Engineering, Mapua University, Intramuros, Manila, Philippines
Ma. Janice J. Gumasing, School of Industrial Engineering and Management, Mapua University, Intramuros, Manila, Philippines

ID 518  Magnetic Survey for Qualitative Interpretation of Subsurface Andesites Rocks Distribution in Kutasari, Purbalingga Regency, Indonesia
Sehah, Sukmaj Anom Raharjo, Urip Nurwiyajanto Prabowo and Dwi Setiawan Sutanto, Department of Physics, Faculty of Mathematics and Natural Sciences, Universitas Jenderal Soedirman, Purwokerto, Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 514  Financing Model for Small-Medium Scale Contractors in Indonesian
Rizal Bahaswan and Sri Wiwoho Mudjanarko, Department of Civil Engineering, Narotama University, Surabaya, 60117, Indonesia
Zulaicha Parastuty, Department of Sociology, Alpen-Adria University of Klagenfurt, Austria

ID 270  The Effect of Easy Perception and Risk of Users of Financial Technology Services in SMEs of Bandung, Indonesia
Budi Rustandi Kartawinata and Mahir Pradana, Telkom University, Jalan Terusan Buah Batu, Bandung 40257, Indonesia
Aldi Akbar, Politeknik Piks-Ganesha Bandung, Jalan Jend. Gatot Subroto No. 301, Bandung 40274
Arlin Ferlina Mochamad Trenggana, Telkom University, Jalan Terusan Buah Batu, Bandung 40257, Indonesia
Synthia Dewi Cahyaningrum, Telkom University, Jalan Terusan Buah Batu, Bandung 40257, Indonesia

ID 489  Design and Development of Sound Absorbing Panels using Biomass Materials
Peter Gabriel C. Buot, Rayson M. Cueto, Andrei A. Esguerra, Ron Irwin C. Pascua and Engr. Sherwin S. Magon, School of Mechanical and Manufacturing Engineering, Mapua University, Intramuros, Manila, Philippines
Ma. Janice J. Gumasing, School of Industrial and Engineering Management, Mapua University, Intramuros, Manila, Philippines
December 9, 2020 (Wednesday)
Session: 1:40 – 4:30 pm– Zoom Meeting Room 1

Keynote Speakers

1:40 – 2:00 pm Conference Chair Remarks and Welcome Address: - Zoom Meeting Room 1

2:00 – 2:30 pm Wednesday Keynote I - Zoom Meeting Room 1

Professor Mqhele Dlodlo
Vice-Chancellor
National University of Science and Technology (NUST)
Ascot, Bulawayo, Zimbabwe

ID 615 Innovative Industrialisation – the Impact of Education 5.0 on University Operations in COVID-19 Times

2:30 – 3:00 pm Wednesday Keynote II - Zoom Meeting Room 1

Corrado La FORGIA
VP Operations Manager and Managing Director
BOSCH VHIT – CR
Offanengo, Lombardy, Italy

ID 575 Digitalization of Production Processes
Corrado Felice la Forgia, Vice President Engineering and Manufacturing, VHIT S.p.A. – Società, Unipersonale, Strada Vicinale delle Sabbione, 5, 26010 OFFANENGO, (Cremona) | ITALIA
3:00 – 3:30 pm Wednesday Keynote III - Zoom Meeting Room 1

**Dr. Marco Lübbecke**  
Professor of Operations Research  
RWTH Aachen University  
Aachen, North Rhine-Westphalia, Germany

3:30 – 4:00 pm Wednesday Keynote IV - Zoom Meeting Room 1

**Prof. Quinton Kanhukamwe**  
Vice Chancellor  
Harare Institute of Technology  
Harare, Zimbabwe

4:00 – 4:30 pm Wednesday Keynote V - Zoom Meeting Room 1

**Professor Paul Mapfumo**  
Vice Chancellor  
University of Zimbabwe  
Harare, Zimbabwe

4:30 – 4:45 pm - Break

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**December 9, 2020 (Wednesday) - Session: 4:45 – 6:15 pm**

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<td><strong>Foad Hosseinkhani</strong></td>
<td><strong>Capturing Voice-of-the Customer / Client – A Systematic Approach to Greater Customer / Client-Centricity Applying Lean Six Sigma Methodology</strong></td>
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<tr>
<td>Director of Quality Assurance, Performance and Business Improvement</td>
<td>Foad Hosseinkhani, Director of Quality Assurance, Performance and Business Improvement, Amor Health Services, Inc., Brownsville, Texas, USA</td>
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<tr>
<td>Amor Health Services, Inc.</td>
<td>Certified Mater Black Belt, Certified Scrum Master, Certified Quality Assurance Engineer</td>
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<tr>
<td>Brownsville, Texas, USA</td>
<td>6:00 – 5:15 pm (Wednesday, December 9) - Zimbabwe Time</td>
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<tr>
<th>4:45 – 5:00 pm (Wednesday, December 9) - Zimbabwe Time / 10 am USA EST</th>
<th>5:15 – 5:30 pm (Wednesday, December 9) - Zimbabwe Time</th>
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<tr>
<td><strong>Eng. ISRAEL RWODZI Pr. (Eng.)</strong></td>
<td><strong>Dr. Philimon Chitagu</strong></td>
</tr>
<tr>
<td>BSc Eng. (Hons) Civil, (FZweIE) UZ, MBA (ESAMI), Dip Pr.Mgnt.(BCE, London), Dip. Comp. Aided Design (BCE, London); Chairman, Engineering Council of Zimbabwe (ECZ) Immediate Past President, Zimbabwe Institution of Engineers (ZIE) Approved Civil Engineer for Large Dams Immediate Past Chairman of Zimbabwe Commission of Large Dams (ZIMCOLD) &amp; Large Dams Division (ZLD) Secretary of Zimbabwe Dam Safety Advisory Panel Independent Civil and Water Consultant</td>
<td>Human Resources and Administration Director at Schweppes Zimbabwe Ltd MGSCC Trained Executive and Team Coach President, Institute Of People Management of Zimbabwe IPMZ Zimbabwe</td>
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5:30 – 5:45 pm (Wednesday, December 9) - Zimbabwe Time

Dr. Douglas Mboweni
CEO
Econent
Zimbabwe

5:45 – 6:00 pm (Wednesday, December 9) - Zimbabwe Time

Nourredine Boubekri Ph.D.
Professor
Department of Mechanical Engineering
College of Engineering
University of North Texas
Denton, Texas, USA

ID 570 Industry 4.0 Technology and Research Trends

4:45 pm – 6:15 pm, WEDNESDAY Women in Industry and Academia Panel Session Room 2

Women in Industry and Academia Panel Session

PANEL CHAIR

Dr. Eng. Loice K Gudukeya
Senior Lecturer
Mechanical Engineering Department
University of Zimbabwe

PANEL SPEAKERS

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<th>Dr. Fortunate Farirai, PhD (Pr. Eng.)</th>
<th>Dr. Bupe Getrude Mwanza</th>
<th>Glory Oguegbu</th>
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<tr>
<td>Chief Executive Officer</td>
<td>Associate Director</td>
<td>Founder</td>
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<td>Sustenergy Zimbabwe</td>
<td>Graduate School of Business</td>
<td>Glow Initiative for Economic Empowerment</td>
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<tr>
<th>Dr. Olawumi O. Sadare</th>
<th>Wezi Nyimbili, MSC (PEIZ, MRAes)</th>
<th>Eng. Irene Masitha</th>
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<tr>
<td>Post-doctoral researcher</td>
<td>Lecturer and coordinator</td>
<td>PhD Student</td>
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<tr>
<td>Department of Chemical Engineering</td>
<td>Aeronautical engineering program</td>
<td>University of Pretoria</td>
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<tr>
<td>University of Pretoria</td>
<td>Copperbelt University</td>
<td>South Africa</td>
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<td>South Africa</td>
<td>Kitwe, Zambia</td>
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4:45 pm – 6:15 pm, WEDNESDAY Cyber Security Room 3

Session Chair: Sam Takavarasha Jr, Women’s University in Africa, Harare, Zimbabwe

Daniel Gebrehawariat, IT Infrastructure and System Department, Bunna International Bank, Addis Ababa, Ethiopia
Lemna Leesa, School of Information Science, Addis Ababa University, Addis Ababa, Ethiopia

ID 452 Identity Based Cryptography: A Technical Review
Mohammed A. Khasawneh, Concordia Institute for Information Systems Engineering, Concordia University, Canada, Montreal

ID 394 Security and Privacy Preserving in Precision Agriculture
Munyaradzi Magomelo, Bindura University of Science Education, Zimbabwe
Mohammed Kaosar, Murdoch University, Australia

ID 367 User Identity Preservation and Data Protection in the Internet of Things
Tambudzai Perpetua Chimeura, National Social Security Authority of Zimbabwe, Zimbabwe
Mohammed Kaosar, Murdoch University, Australia

ID 487 An Evaluation of Cyber Crime and Cyber Security Bill of Zimbabwe
Farai Francisco Maidya, Ramson Munyaradzi Nyamukondiwa and Cuthbert Tendaupenyu, University of Zimbabwe School of Technology, University of Zimbabwe, Harare, Zimbabwe
Daniel Gebrehawariat, IT Infrastructure and System Department, Bunna International Bank, Addis Ababa, Ethiopia  
Lemma Lessa, School of Information Science, Addis Ababa University, Addis Ababa, Ethiopia

4:45 pm – 6:15 pm, WEDNESDAY  
Session Chair:

6:15 pm – 6:30 pm: Break

December 9, 2020 (Wednesday) - Session: 6:30 pm – 8:00 pm

6:30 pm – 8:00 pm, WEDNESDAY  
Waste Management  
Room 1  
Session Chair: Tafadzwa Shumba, National University of Science and Technology, Bulawayo, Zimbabwe

ID 120  Research and Development Team of Sustainable Green Environment Initiative  

ID 178  Automated Waste Characterisation and Sorting for Large Institutions through Conceptualisation, Design and Simulation  
Sudhir S. Zhuwawu, Department of Mechanical Engineering, University of Zimbabwe, P O Box MP 167, Mount Pleasant, Harare, Zimbabwe  
Wilson R. Nyemba and Simon Chinguwa, Department of Mechanical Engineering, University of Zimbabwe, P O Box MP 167, Mount Pleasant, Harare, Zimbabwe and Department of Quality and Operations Management, University of Johannesburg, Auckland Park 2006, Auckland Park Campus, South Africa

ID 370  Deriving Value From Waste: Cupola Furnace Slag as a Solid Lubricant in Drilling Processes  
Loice Gudkeyea and Charles Mbohwa, Faculty of Engineering and the Built Environment, University of Zimbabwe, Harare, Zimbabwe and Faculty of Engineering and the Built Environment, University of Johannesburg, Johannesburg, South Africa  
Roy Mushonga and Ignatius Madanhiire, Faculty of Engineering and the Built Environment, University of Zimbabwe, Harare, Zimbabwe

ID 356  Disposal of Used Fumigant Containers in Zambia  
Ziwa Tisah, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Great East Road, Lusaka, Zambia  
Erastus Mishengu Mwanaumo, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Great East Road, Lusaka, Zambia  
James Nyirenda, Department of Chemistry, School of Natural Sciences, University of Zambia, Lusaka, Zambia  
Bupe Getrude Mwanza, Graduate School of Business, University of Zambia, Great East Road, Lusaka, Zambia

Tafadzwa Shumba and Samson Mhlanga, Department of Industrial and Manufacturing Engineering, National University of Science and Technology Bulawayo, Zimbabwe  
Mufaro Moyo, Department of Fibre and Polymer Materials Engineering, National University of Science and Technology, Bulawayo, Zimbabwe

Tafadzwa Shumba, Mufaro Moyo and Samson Mhlanga

6:30 pm – 8:00 pm, WEDNESDAY  
Project Management  
Room 2  
Session Chair: Haikal Rahman, Department of Business Digital, Universitas Negeri Medan, Medan, Indonesia

ID 260  A Bi-Objective Lot of Sizing and Scheduling Problem Dealing with Reworking the Perishable Items in a Parallel Machine System  
Elham Taghizadeh, Department of Industrial and System Engineering, Wayne State University, Detroit, MI 48035, USA  
Setareh Torabzadeh and Abdollah Mohammadi, Systems Engineering and Engineering Management Department, University of North Carolina at Charlotte, Charlotte, NC, 29223, USA

ID 352  An Investigation of Factors Causing Schedule Overrun in Telecommunication Projects in Zambia  
Mwewa Mambwe, Department of Construction Management and Quantity Surveying, Faculty of Engineering and the Built Environment, University of Johannesburg, Johannesburg, South Africa  
Erastus Mishengu Mwanaumo, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Lusaka, Zambia  
Bupe Getrude Mwanza, Graduate School of Business, University of Zambia, Great East Road, Lusaka, Zambia  
Epheso Sibalwa, Nokia Zambia Limited, Lusaka Zambia
ID 353  Effectiveness in the Contract Management Performance within the Lusaka Provincial Administration – A Balanced Scorecard Application
Erastus Mishengu Mwanaumo, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Great East Road, Lusaka, Zambia
Mwewa Mambwe, Department of Construction Management and Quantity Surveying, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa
Micheal Kalumbu Nsefu, Zambia Weights and Measures Agency, Lusaka, Zambia
Jaccqueline Daka, University of Lusaka, Lusaka, Zambia
Bupe Grtrude Mwanza, Graduate School of Business, University of Zambia, Great East Road, Lusaka, Zambia

ID 355  Impact of Stakeholder Engagement on Performance of Construction Projects in Lusaka District
Micheal Kalumbu Nsefu, Zambia Weights and Measures Agency, Lusaka, Zambia
Mwewa Mambwe, Department of Construction Management and Quantity Surveying, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa
Erastus Mishengu Mwanaumo, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Lusaka, Zambia
Nicholas Sakaila, University of Lusaka, Lusaka, Zambia

ID 354  Risk Analysis and Management in Public Private Partnerships of Urban Markets in Lusaka, Zambia
Erastus Mishengu Mwanaumo, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Lusaka, Zambia
Mwewa Mambwe, Department of Construction Management and Quantity Surveying, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa
Micheal Kalumbu Nsefu, Zambia Weights and Measures Agency, Lusaka, Zambia
Muntanga Mulula Lindunda, University of Lusaka, Lusaka, Zambia

ID 015  Visual Project Management Tools and Practices: Supplier Company Case Study
Md Irfan Uzzaman, Industrial Engineering and Management, University of Oulu, Pentti Kaiteran Katu 1, 90570 Oulu, Finland
Tasminur Mannan Adnan, Industrial Engineering and Management, University of Oulu, Pentti Kaiteran Katu 1, 90570 Oulu, Finland

ID 582  The Role of Entrepreneurship Study in Developing The Abilities of Students to be Young Entrepreneurs: Empirical Study in Universitas Negeri Medan, Indonesia
Haikal Rahman, Department of Business Digital, Universitas Negeri Medan, Medan, Indonesia
Rahmatisyah, Department of Physics, Universitas Negeri Medan, Medan, Indonesia
Ali Fikri Hasibuan, Department of Entrepreneurship, Universitas Negeri Medan, Medan, Indonesia
Rangga Restu Prayogo, Department of Entrepreneurship, Universitas Negeri Medan, Medan, Indonesia
Gaffar Hafiz Sagala, Department of Business Digital, Universitas Negeri Medan, Medan, Indonesia
Dedi Yusrizal, Department of Business Digital, Universitas Negeri Medan, Medan, Indonesia

6:30 pm – 8:00 pm, WEDNESDAY  Construction Management  Room 3
Session Chair: Muluken Abebe, M.Sc., Faculty of Mechanical and Industrial Engineering, Bahir Dar Institute of Technology, Bahir Dar, Ethiopia

ID 290  An Investigative Study of Mentoring Programs for New Entry Graduates Employees in the South African Construction Industry
Morena William Nkomo and Wellington Didibhuku Thwala, Department of Construction Management and Quantity Surveying, University of Johannesburg, Johannesburg, South Africa
Clinton Ohis Aigbavboa, Department of Construction Management and Quantity Surveying, University of Johannesburg, Johannesburg, South Africa

ID 307  Assessment of Mentoring on Retention of Workers and Human Resource Management in the Construction Sector: A Literature Review
Morena William Nkomo and Wellington Didibhuku Thwala, Department of Construction Management and Quantity Surveying, University of Johannesburg, Johannesburg, South Africa
Clinton Ohis Aigbavboa, Department of Construction Management and Quantity Surveying, University of Johannesburg, Johannesburg, South Africa

ID 014  Evaluating the Effect of Strategic Alliance Procurement Method on Construction Financial Performance in Nigeria
Bodunde Funmilayo Iyabo, Akinrata Ebufonoluwa Bimbola and Ayotunde Anthony Babalola, Department of Quantity Surveying, Federal Polytechnic Ado-Ekiti, Nigeria

ID 013  Evaluating the Benefits of Project Alliance Formation among Contractors in Nigerian Construction Industry
Akinrata Ebufonoluwa Bimbola, Department of Quantity surveying, Ahmadu Bello University Zaria, Nigeria
Bodunde Funmilayo Iyabo, Department of Quantity surveying, Federal University of Technology Akure, Nigeria
Ayotunde Anthony Babalola, Department of Quantity Surveying, Federal Polytechnic Ado-Ekiti, Nigeria

ID 228  Evaluating the Factors Contributing to Unethical Practices by Quantity Surveyors in Nigerian Construction Industry
Akinrata Ebufonoluwa Bimbola, Department of Quantity surveying, Ahmadu Bello University Zaria, Nigeria
Ayodeji Oke and Bodunde Funmilayo Iyabo, Department of Quantity surveying, Federal University of Technology Akure, Nigeria
Ayotunde Anthony Babalola, Department of Quantity Surveying, Federal Polytechnic Ado-Ekiti, Nigeria

ID 225  Minimization of Yarn Breakage Rate in Looming Process Using Parameter Optimization Techniques
Muluken Abebe, M.Sc., Faculty of Mechanical and Industrial Engineering, Bahir Dar Institute of Technology, Bahir Dar, Ethiopia
PARALLEL SESSIONS
December 7-10, 2020

6:30 pm – 8:00 pm, WEDNESDAY  Design and Analysis  Room 4
Session Chair: Purity Mimi Shandu, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, South Africa

ID 425  A Regression Model upon Treatment of AMD Using Pervious Concrete
A. L. Mafanya, Department of Industrial and Mechanical Engineering, University of Johannesburg, South Africa
B.D.V.V. Kallon, Department of Industrial Engineering, University of Johannesburg, South Africa

ID 123  Design of Electro-Hydraulic Circuits of Tri-adjustable Automated Heavy-Duty Industrial Handling System
S.Z. Mafokwane, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa
D.V.V. Kallon, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 300  Design, Modelling and Analysis of an App Controlled Smart Waiter
Md. Galib An-Noor Amio, Department of Industrial and Production Engineering, Bangladesh University of Engineering and Technology, Dhaka-1000, Bangladesh

ID 389  Optimising the Velocity and Discharge Produced by a Spray Nozzle for Efficient Washing of Aggregates in a Mining Industry
P. B. Sob, Department of Mechanical Engineering, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa

8:00 – 8:15 Break

December 9, 2020 (Wednesday) - Session: 8:00 – 10:00 pm

8:15 pm – 10:00 pm, WEDNESDAY  Quality Control and Management  Room 1
Session Chair: Sobhi Mejjaouli and Sarah Algublan, Industrial Engineering Department Alfaisal University, Riyadh, Saudi Arabia

ID 362  A Cross Sectional Pilot Study on Quality Management System in the Small and Medium Enterprise (SME) In South Africa
A.Y Magodi, I. A. Daniyan and K. Mpofu, Department of Industrial Engineering, Tshwane University of Technology, South Africa

ID 295  Implementation of a Semi-Automated Model to Accelerate the Rate of Kaizen in Film Packaging Industry
Matshidiso Moso, Oludolapo A. Olanrewaju and Mendon Dewa, Department of Industrial Engineering, Durban University of Technology, Durban, South Africa

ID 301  An Analysis of the Problems Encountered in Implementing and Maintaining Lean Six Sigma at a Manufacturing Company in Namibia
David Meke Shikulo and Forbes Chiromo, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 265  DMAIC Six-Sigma Application in Management Productivity ‘Gap’ Reduction in Manufacturing Production Line
Jean-Claude Munyaka Baraka and Venkata Seshachala Sarma Yadavalli, Department of Industrial and System Engineering, University of Pretoria, Pretoria, 0002, South Africa

ID 009  Use of Lean Six sigma (DMAIC) Methodology to Address Down Time in a Paper Company
Adeleke Omowole Adeodu, University of South Africa, Florida, South Africa
Mukondelezi Grace Kanakana-Katumba, University of South Africa, Florida, South Africa

ID 567  Packaging Process Optimization Using Six Sigma
Sobhi Mejjaouli and Sarah Algublan, Industrial Engineering Department Alfaisal University, Riyadh, KSA

8:15 pm – 10:00 pm, WEDNESDAY  Entrepreneurship and Innovation  Room 2
Session Chair: George Pappas, Lawrence Technological University, Southfield, MI 48075, USA

ID 517  ERP Pre-Implementation Readiness Assessment Framework for Ethiopian Context: A Multi Stakeholders’ Perspective
Rahel Tekleselassie, Customer Service Department, Ethio Telecorr, Addis Ababa, Ethiopia
Lemma Leessa, School of Information Science, Addis Ababa University, Addis Ababa, Ethiopia

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ID 422 Broadcasting Beyond: Making the Next Generation in Communication
Aaron Lindbauer, Department of Electrical, Computer Engineering and Embedded Software Engineering, Lawrence Technological University, Southfield, MI 48075, USA
George Pappas, Ph.D. & David Newman, Department of Electrical, Computer Engineering and Embedded Software Engineering, Lawrence Technological University, Southfield, MI 48075, USA

Felix Okonta and Langeriwa Mthombeni, Department of Civil Engineering, University of Johannesburg, South Africa

ID 349 Integration and Analysis of Heat Exchangers and Refrigeration Units for Outdoor Drinking Water through Industrial Secondment at Pretoria Portland Cement
Roy Mushonga, University of Zimbabwe
Loice Gudukeya, University of Johannesburg
Tayuanashe Chikuku, Hilton Chingosho and Tinotenda Madoro, University of Zimbabwe

ID 221 Management of Innovation in a Weapon Manufacturing Company
Pfarelo Precilla Nelufule and Hilda Kundai Chikwanda, Graduate School of Technology Management, University of Pretoria, Hatfield, South Africa

8:15 pm – 10:00 pm, WEDNESDAY
Inventory Management
Room 3
Session Chair: Mahir Pradana, Bandung, Jawa Barat, Indonesia

ID 076 An Analysis of the Inventory Management Challenges: The Case of Gypsum Plasterboard Manufacturing Company in South Africa
Madzivhandila Ntendeleni Lawrence and Forbes Chiromo, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 373 Impact of procurement practices on organizational performance on Small to Medium Enterprises: Case Study
Ignatio Madanhire, Kumbi Mugwindiri and Nyasha Mudefi, Department of Mechanical Engineering, University of Zimbabwe, P O Box MP167, Mount Pleasant, Zimbabwe

ID 146 Inventory Management: Impact on Demand Uncertainty and Forecasting in Fast Moving Consumer Goods
Ndívhuwo Ntemajela, Department of Operations Management, University of South Africa, P.O. Box 392, Unisa, 0003, South Africa
1 Preller Street, Pretoria, South Africa

ID 310 Analysis of Automotive Product Selection in Indonesia: Factors of Brand Image Using Analytical Hierarchy Process
Mahir Pradana, Bandung, Jawa Barat, Indonesia

ID 229 Application of Ant Colony Optimizer (ACO) for effective path planning in a big-box store or retail facility
Modestus O. Okwu 1, 2, Justice Afenogho 1, and Tartibu K. Lagouge 2
1 Department of mechanical Engineering, Federal University of Petroleum Resources Effurun, Delta State, Nigeria
2 Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa

ID 209 Challenges and Strategies in NPOs' Operations during Covid-19
Hilda Kundai Chikwanda, Graduate School of Technology Management, University of Pretoria, Hatfield, 0028, RSA

8:15 pm – 10:00 pm, WEDNESDAY
Business Management
Room 4
Session Chair: Eren Özceylan, Industrial Engineering Department, Gaziantep University, Gaziantep, Turkey

ID 284 Innovation as Part of the Strategy for Microbusinesses during COVID-19
Yara A. Elkhali, Department of Management and International Management, Colorado State University – Global Campus, Greenwood Village, CO 80111

ID 200 The Role of Entrepreneurship Study In Developing The Abilities of Students To Be Young Entrepreneurs: Empirical Study In Universitas Negeri Medan, Indonesia
Haikal Rahman, Department of Business Digital, Universitas Negeri Medan, Medan, Indonesia
Rahmat Syah, Department of Physics, Universitas Negeri Medan, Medan, Indonesia
Ali Fikri Hasibuan, Department of Entrepreneurship, Universitas Negeri Medan, Medan, Indonesia
Rangga Restu Prayogo, Department of Entrepreneurship, Universitas Negeri Medan, Medan, Indonesia
Gaffar Hafiz Sagala, Department of Business Digital, Universitas Negeri Medan, Medan, Indonesia

ID 416 Design of a first aid robotic end effector for passenger car occupants
Caiphas Svose and Tawanda Mushiri, Department of Industrial and Mechatronics Engineering, Faculty of Engineering and the Built Environment, University of Zimbabwe, Harare, Mt Pleasant, 630 Churchill Avenue, Zimbabwe

ID 172 A Review of Logistics 4.0 Literature for Curriculum Development for Vocational High Schools
Kerem Elibal, BCS Metal Co., Gaziantep, Turkey
Eren Özceylan, Industrial Engineering Department, Gaziantep University, Gaziantep, Turkey

ID 226 Assessments of the Internet of Things and Security
Farid El Ghaoual, Assad CHAHBOUN and Naoufal RAISSOUNI, National School of Applied Science, Abdelmalek Essaâdi University, Tetouan B.P. 2117, Morocco
ID 502 Comparative Analysis of Critical Success Factors Affecting ERP Implementation in Private and Public Organizations in Ethiopia: A Pareto Approach
Sisay Maganaw, Information Science Department, Assosa University, Ethiopia, Assosa, Ethiopia
Lemma Lessa, School of Information Science, Addis Ababa University, Addis Ababa, Ethiopia

ID 548 Strategic Integrated Transport for growth and development strategy in South Africa, a focus on Rea Vaya BRT
Mamogege Desiree Sekgale and Nelson Madonsela, Department of Operations Management University of Johannesburg, Doornfontein, RSA

December 10, 2020 (Thursday)

December 10, 2020 (Thursday) - Session: 8:00 – 9:45 am

8:00 – 9:45 am, THURSDAY Quality and Reliability Room 1
Session Chair: Hennie Husniah, Department of Industrial Engineering, Langlangbuana University, Bandung, Indonesia

ID 656 Proactive procurement of services; An Innovation to Small Businesses’ Operational Management Dimension
Syeda Asiya Zenab Kazmi, Industrial Mgt., Production Dept., University of Vaasa, Finland

ID 666 Marketplace Effectiveness In Increasing Sales Concentration of Small Business Products During The Covid19 Pandemic
Wiwik Istyarini, Institute of Economic Science Al-Anwar Mojokerto
I Putu Artaya, Departement of Management, University Narotama Surabaya
Tubagus Punworusmiardi, Departement of Management, University Narotama Surabaya
Agus Sukoco, Departement of Management, University Narotama Surabaya
Made Kamisutara, Departement of Computer Science, University Narotama Surabaya
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 667 The Application Of Program Monitoring The Health Of The Baby Through The SMS-Based Immunization Activities
Made Kamisutara, Departemen of Computer Science, University Narotama Surabaya
I Putu Artaya, Departemen of Management, University Narotama Surabaya
Tubagus Punworusmiardi, Departemen of Management, University Narotama Surabaya
Agus Sukoco, Departemen of Management, University Narotama Surabaya
IGA Sri Deviyanti, Departemen of Management Industries, University WR. Supratman Surabaya
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

8:00 – 9:45 am, THURSDAY Operations Research Room 2
Session Chair: A. O. ANIKI, Vaal University of Technology, Vanderbijlpark, Gauteng. South Africa

ID 199 SMART Performance Management of SA’s UN Climate Change Commitments
S. Zuma, Eskom SOC Limited RSA, Generation Division, South Africa
P. Naidoo and N. Sukdeo, Faculty of Engineering and the Built Environment, University of Johannesburg, Auckland Park, Johannesburg, RSA

ID 267 Monitoring and Air Quality Control for Occupational Safety and Health in Fertilizer Production Companies in Zimbabwe
Itai Mutadza Tawanda W. Nhando and Perkins Muredzi, School of Engineering and Technology, Department of Chemical and Process Systems Engineering, Harare Institute of Technology, Belvedere, Harare, Zimbabwe

ID 057 Optimization of Electricity Consumption for a Galvanising Plant through Comparative Analysis of Regression Analysis And Genetic Algorithm
Mendon Dewa, Department of Industrial Engineering, University of Technology, Durban, South Africa

ID 440 Inventory Simulation Modelling for Local Shoes Manufacturer
Yudhia Mulia, Department of Economics and Business, Universitas Pakuan, Indonesia
Sufiatul Maryana, Vocational School, Universitas Pakuan, Indonesia
### ID 460  Internal Audit Resource Allocation Model using Linear Programming
Frederick M. Baldo and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

### ID 459  Internet Presence Monitoring: Application of Heuristic Genetic Algorithm to Increase Efficiency in Work Allocation
Tricy B. Aquino, Juan Florencio C. Ferrer and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

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#### 8:00 – 9:45 am, THURSDAY  
**Supply Chain Management**  
*Room 3*

Session Chair: Olufemi Adetunji, Department of Industrial and Systems Engineering, University of Pretoria, Pretoria, South Africa

- **ID 299** Analysis of Critical Determinants of Supply Chain Resilience for Perishable Foods Using Fuzzy TOPSIS/CRITIC Method: An Overview of the Poultry Industry
  Md. Galib An-Noor Amio and Naqib Mahmud Chowdhury, Department of Industrial and Production Engineering, Bangladesh University of Engineering and Technology, Dhaka-1000, Bangladesh

- **ID 216** Challenges of Logistics and Supply Chain Management during COVID-19
  Piya Ghosh and RRK Sharma, Industrial and Management Engineering, Indian Institute of Technology, Kanpur, India

- **ID 255** Critical Risk Factors of Outsourcing in Supply Chains
  Viktoria Barany, Julia Galus, Franca Hiemisch and Shahyra Sorooshian, Department of Business Administration, University of Gothenburg, Gothenburg, Sweden

- **ID 264** Impact of Virtual Clustering of Organizations on Organization’s Competitive Advantage: A Supply Chain Point of View
  Robert Monageng, Mechanical Engineering Department, University Botswana, Gaborone, Botswana and Department of Industrial and Systems Engineering, University of Pretoria, Pretoria, South Africa
  Olufemi Adetunji, Department of Industrial and Systems Engineering, University of Pretoria, Pretoria, South Africa

- **ID 150** Implementation of a Cloud-Based ERP System at a South African Public Entity
  B.M.B Cebekhulu 1, P.A. Ozor 1, 2, and C. Mbohwa 1
  1 Department of Quality and Operations Management, Faculty of Engineering and the Built Environment, University of Johannesburg, Auckland Park, Johannesburg, South Africa
  2 Department of Mechanical Engineering, Faculty of Engineering, University of NigeriaNsukka, Nigeria

- **ID 501** Modelling and Mapping University Business Process: Level 1
  Bachtliar H. Simamora, Wibowo Kosash, Natalia, Rudi and Lily Leonita, Management Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia

- **ID 521** Synthesising Lean Construction and Building Information Modelling to improve the South African Architecture, Construction and Engineering Industries: A Literature Review
  Temitope Olaniran and Nischolan Pillay, Department of Architecture, Faculty of Engineering and the Built Environment, Durban University of Technology, Durban, 4001, Republic of South Africa

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#### 8:00 – 9:45 am, THURSDAY  
**Sustainability and Green Systems**  
*Room 4*

Session Chair: Gamuchirai Mutubuki, National University of Science and Technology, Bulawayo, Zimbabwe

- **ID 093** A Sustainable Conceptual Model for Pyrolysis to Power Project using Lignocellulosic Waste
  Gratitude Charis, Gwiranai Danha and Edison Muzenda, Department of Chemical, Materials and Metallurgical Engineering, Botswana International University of Science and Technology, P Bag 016 Palapye, Botswana
  Edison Muzenda, Metallurgy and Chemical Engineering, University of Johannesburg, School of Mining, Doornfontein, Johannesburg, South Africa

- **ID 346** Development of Green Maintenance Strategy of Coal-Fired Power Plants in the Philippines
  Marvin I. Norofia, School of Industrial Engineering and Engineering Management, Mapua University, Manila, Intramuros, Manila 1002, Philippines.
  A.J.D. Alamag – Rosales, School of Industrial Engineering-Engineering Management (EI-EMG), Mapua University, 658 Muralla St., Intramuros, Manila 1002, Philippines

- **ID 227** Energy Transition and Environmental Benefit of Fuel Cell Electric Vehicles
  Muhammad Nadeem Akram and Walid Abdul-Kader, Mechanical, Automotive and Materials Engineering Department, University of Windsor, Windsor, Ontario, Canada

- **ID 410** Green Manufacturing in the Food Industry and its Impact on the Environment
  Gamuchirai Mutubuki, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Bulawayo, Zimbabwe
  Gibson P Chirinda, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Bulawayo, Zimbabwe

- **ID 337** Selection Criteria for a Tobacco Curing Solar Thermal Collector Energy System in Zimbabwe
  Nelson Shati, Ignatio Madanhire and Tawanda Mushiri, Department of Mechanical Engineering, University of Zimbabwe, Mount Pleasant, Harare, Zimbabwe
  Emmanuel Mashonjowa, Department of Physics, University of Zimbabwe, P. O. Box MP167, Mount Pleasant, Harare, Zimbabwe
Development of a Biogas Plant with Electricity Generation, Heating and Fertilizer Recovery Systems
Moses Jeremiah Barasa Kabeyi and Oludolapo Akanni Olanrewaju, Industrial Engineering Department, Durban University of Technology, South Africa

9:45 – 10:00 am Break

December 10, 2020 (Thursday) - Session: 10:00 – 11:45 am

10:00 am – 11:45 am, THURSDAY

Room 1

Business Management

ID 649  A Preliminary Study on the Relationship between Financial Literacy and Business Performance among Entrepreneurs in Bauchi Metropolis, Nigeria
Wan Fauziah Wan Yusoff and Usama Khadijah Muhammad, Universiti Tun Hussein Onn Malaysia

ID 652  Implementation Barriers in the Establishment and Management of BUMDESA in Deli Serdang City, Indonesia
Rangga Restu Prayogo, UNIMED, Indonesia

ID 653  Integrated Waste Management System among College Students
Muhammad Ikhsan Setiawan, Narotama University, Indonesia
Anita Dewi Moelyaningrum, Department of Environmental Health and Occupational Health and Safety, Public Health Faculty, Universitas Jember, Indonesia
Dheasy Herawati, Faculty of Health Sciences, Universitas Maarif Hasyim Latif, Ngelam Megare, Sidoarjo, Indonesia
Khoirul Ngibad, Program Studi D3 Teknologi Laboratorium Medik, Fakultas Ilmu Kesehatan Universitas Maarif Hasyim Latif, Indonesia
Prayogi Sunu, Departement of Animal Science, Faculty of Animal Science, Boyolali University, Boyolali, Indonesia

ID 655  Appraising Project Management Methodologies to harness effective evaluation and control
Syeda Asiya Zenab Kazmi, Industrial Mgt., Production Dept., University of Vaasa, Finland

ID 650  Modeling COVID-19 Cumulative Data in Indonesia using Morgan-Mercer-Flodin Growth Equation
Asep Kuswandi Supriatna, Universitas Padjadjaran, Indonesia
Hennie Husniah, Langlangbuana University, Indonesia

ID 485  Analysis of the Performance of Gubeng Train Station Facilities According to Public Perceptions
Dwi Sulastri, Sri Wiwoho Mudjanarko, Atik Wahyuni and Rizal Bahaswan, Department of Civil Engineering, Narotama University, Surabaya, Indonesia
Joewono Prasetijo, Department of Jabatan Teknologi Kejuruteraan Pengangkutan, Universiti Tun Hussein Onn Malaysia, Pagoh, 84600, MALAYSIA

Room 2

Sustainability and Green Systems

10:00 am – 11:45 am, THURSDAY

Session Chair: Nurhayati Sembiring, Department of Industrial Engineering, Faculty of Engineering, Universitas Sumatera Utara, Medan, Indonesia

ID 328  Application of Mechanization in Productivity Improvement - A Case of Auxiliary Production Equipment in Productivity
Ngaka Mosia, Department of Mechanical and Industrial Engineering, University of South Africa, Gauteng, Johannesburg, RSA

ID 012  Approche Sécurité Système
Anouar Halloui, Laboratoire des Techniques Industrielles, Centre d’Etudes Doctorales en Sciences et Techniques de l’Ingénieur - Faculté des Sciences et Techniques de Fès, Université SIDI MOHAMED BEN ABDELLAH, Fès, Morocco
Brahim Herrou, Ecole Supérieure de Technologie, BP. 2427 Route Imouzzer, Fès, Morocco

ID 319  Developing an Analytical Framework for Assessing the Relationship between Quality Management Practices and Organisational Performance in the Namibian Shipping Sector
Paulus Andela and Dr. Michael Sony, Department of Mechanical & Marine Engineering, Namibia University of Science & Technology, Windhoek, Namibia

ID 374  Implementation of Predictive Maintenance in a Thermal Power Plant: Case of Thermal Power Plant
Ignatio Madanhire, Kumbi Mugwindiri and Zorodzai Tota, University of Zimbabwe, Department of Mechanical Engineering, P.O Box MP167, Mt Pleasant, Harare, Zimbabwe

ID 323  Optimization of Plantation and Forestry Management in Various Countries Using a Dynamic Model Approach: A Review
Nurhayati Sembiring, Humala Lodewijk Napitupulu, Meilita Tryana Sembiring, Aulia Ishak Sipahutar and Rhyval Radot R, Department of Industrial Engineering, Faculty of Engineering, Universitas Sumatera Utara, Medan, Indonesia

ID 058  Strategies for Sustainability of John Taolo Gaetsewe District Municipality Towns Post Mining (South Africa)
Bathusi Letsholo, Boksburg, Gauteng, South Africa

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**IEOM Harare Conference**  
**PARALLEL SESSIONS**  
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### 10:00 am – 11:45 am, THURSDAY  
**Energy**  
**Room 3**

Session Chair: Oludolapo Akanni Olanrewaju, Durban University of Technology, Durban, South Africa

**ID 083** Optimization of Biogas Production for Optimal Abattoir Waste Treatment with Bio-Methanation as Solution to Nairobi Slaughtertosomes Waste Disposal  
Moses Jeremiah Barasa Kabeyi and Oludolapo Akanni Olanrewaju, Department of Industrial Engineering, Faculty of Engineering and the Built Environment, Durban university of Technology, Durban, RSA

**ID 385** Potential, Future Prospects and Challenges associated with the Implementation of Photovoltaic Based Solar Energy Systems in Zimbabwe  
Takawira Cuthbert Nzienda, Munyaradzi Munochiveyi, Todd Marufu and Lovemore Magombo, Electrical Engineering Department, University of Zimbabwe, Harare, Zimbabwe

**ID 155** Pre and Post Privatisation Assessment of Transcorp Power Gas Turbine Plants using Standard Key Performance Indicators  
Okoye, Arinze. E., Department of Mechanical Engineering, University of Benin, Benin City, Nigeria

**ID 112** Robust Least Squares Estimation Model for Fighting Poverty in Indonesia Case  
Sidik Budiono, Department of Management Faculty of Economics and Business, Universitas Pelita Harapan, Tangerang 15811, Indonesia
John Tampil Purba, Department of Management Faculty of Economics and Business, Universitas Pelita Harapan, Tangerang 15811, Indonesia
Gidon P. Adrineikeko, Department of Management Faculty of Economics and Business, Universitas Kristen Krida Wacana, Jakarta, Indonesia

**ID 402** Towards Decentralised Water Access, A Primer Solar PWS Design Solution to Aid The COVID-19 Fight  
Hilton Chingosho, Roy M Mushonga, Tawanda Mushiri, and Loice Gudukeya, Department of Mechanical Engineering, University of Zimbabwe, Harare, P.O Box MT 167 Mount Pleasant, Zimbabwe

### 10:00 am – 11:45 am, THURSDAY  
**Industry Practices and Solutions**  
**Room 4**

Session Chair: Haftu Hailu, Department of Industrial Engineering, Ethiopian Institute of Technology, Mekelle University, Mekelle, Tigray, Ethiopia

**ID 048** Benefits of Functions Interdependence between and Autonomy of Organization Structure Units: Case of Small Scale Sandstones Processing  
Antoine F. Mulaba – Bafubianidi and Beejo Blessing Chauke  
Mineral Processing and Technology Research Centre, Department of Metallurgy, School of Mining, Metallurgy and Chemical Engineering, Faculty of Engineering and The Built Environment, University of Johannesburg, P.O Box 17911, Doornfontein, Johannesburg 2028, South Africa

**ID 393** Developing a Lean Value Chain for Botswana’s Grain Milling Industry – A Case Study of a Wheat Milling Company  
Leaname Thaolang, Trainee Miller – Operations Department, Bolux Group (Pty) Ltd, Ramotsowa Station, Botswana
Norman Gwangwawa, Mechanical and Industrial Engineering Department, Botswana International University of Science and Technology, Palapye, Botswana

**ID 117** Development of an Asset Criticality Assessment Tool, the Case of a Fertiliser Manufacturing Company  
Milton Masukume, Samson Mhlanga and Tinashe Mubvirwi, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, PO Box AC 939, Ascot, Bulawayo, Zimbabwe
Tawanda Mushiri, Industrial and Mechatronics Engineering Department, Faculty of Engineering and the Built Environment, University of Zimbabwe,630 Churchill Avenue, Harare, Zimbabwe

**ID 454** Increasing Customer Satisfaction Index Through Integrated Restaurant Operational Systems  
Faiza Renaldi, Devi Fajar Wati and Agya Java Mauldin, Department of Informatics, Universitas Jenderal Achmad Yani, Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

**ID 372** Investigating the Role of Industrial Engineering in Process Improvement in the Banking Industry: A Case Study of Bank Y  
Babedi Kufiwga and Norman Gwangwawa, Department of Mechanical, Energy and Industrial Engineering, Botswana International University of Science and Technology, Palapye, Botswana
Bathusi Makopo, Business Process Analyst, First National Bank of Botswana, First Place,(CBD), Gaborone, Botswana

**ID 166** The Relationship between Kaizen Philosophy and Organizational Performance Empirical Investigation: A Case of Ethiopian Manufacturing Industries  
Haftu Hailu, Fasil Taddese and Kinfe Tsegay, Department of Industrial Engineering, Ethiopian Institute of Technology, Mekelle University, Mekelle, Tigray, Ethiopia
Kassu Jilcha, Industrial Engineering Department, Addis Ababa Institute of Technology (AAIiT), Addis Ababa University, Addis Ababa, Ethiopia
Tewodros Hailu, Mechanical Engineering Department, Axum University (AU), Axum, Tigray, Ethiopia

### 11:45 am – 12:00 pm Break
December 10, 2020 (Thursday) - Session: 12:00 – 1:40 pm

12:00 pm – 1:40 pm, THURSDAY  
**Global Engineering Education IV**  
Room 1

Session Chair: Dr. Tamale T. Kambikambi, Deputy Vice Chancellor, University of Zambia

12:00 – 12:20 (Thursday, December 10) - Zimbabwe Time

**Dr. Noreffendy Tamaldin**
Dean, Center for Graduate Studies  
Universiti Teknikal Malaysia Melaka  
Air Keroh, Malacca, Malaysia

**ID 680**  
**ERASMUS+ United CBHE Automotive International Collaboration from European to South East Asia**
Noreffendy Tamaldin, Automotive Department, Faculty of Mechanical Engineering, Universiti Teknikal Malaysia Melaka, UTeM, Melaka Malaysia  
Thomas Esch, Faculty of Aerospace Engineering, FH Aachen, Hohenstaufenallee 6, 52064 Aachen, Germany  
Andrea Tonoli, Department of Mechanics and Aerospace Engineering, Turin Polytechnic University, Turin, ITALY  
Karl Heinz Reisinger and Hanna Sprenger, Institute of Automotive Engineering, FH Joanneum Gesellschaft mbH, Austria  
Hisham Razuli, Research & Development Centre (HQ), Dreamedge Sdn Bhd, Cyberjaya, Selangor, Malaysia

12:20 – 12:40 (Thursday, December 10) - Zimbabwe Time

**Dr. Eng. Wilson R. Nyemba**
Department of Mechanical Engineering  
Past Dean, Faculty of Engineering  
University of Zimbabwe  
Mount Pleasant, Harare, Zimbabwe

12:40 – 1:00 (Thursday, December 10) - Zimbabwe Time

**Dr. Tamale T. Kambikambi**
Deputy Vice Chancellor  
University of Zambia  
Board Member - Zambia Qualifications Authority

1:00 – 1:20 (Thursday, December 10) - Zimbabwe Time

**Regai Tsunga**
Director: A Self-help Assistance Program (ASAP), Education Consultant, Human Rights Defender, Development Programmer  
Mutare, Zimbabwe

1:20 – 1:40 (Thursday, December 10) - Zimbabwe Time

**Dr. Joseph M. Ogundu**
President/CEO  
Emerald Global Consulting Inc.  
West Bloomfield, Michigan, USA

12:00 pm – 1:30 pm, THURSDAY  
**Industry 4.0 & Logisitcs 4.0**  
Room 2

Session Chair: Noredine Sadki, Laboratory of Mathematical Modeling and Control, Faculty of Sciences and Technologies of Tangier, Morocco

**ID 052**  
**Quantum Computing Philosophy in the Extraction of Cobalt from Cobalt-Copper Complex Ore**
Antoine F. Mulaba – Bafubiandi and Divin Shabani, Mineral Processing and Technology Research Centre, Department of Metallurgy, School of Mining, Metallurgy and Chemical Engineering, Faculty of Engineering and The Built Environment, University of Johannesburg, P.O Box 17911, Doornfontein, Johannesburg 2028, South Africa

**ID 003**  
**IoT Based Security Management Framework for Heterogeneous Network Environment**
Ajibo Chinenye Augustine, Chineake-Ogbuka Ifeanyi, Dogo Eustace and Ogbuka Cosmas Uchenna, Department of Electronic Engineering, University of Nigeria Nsukka, Nigeria

**ID 088**  
**Accessibility to Bus Stops in University Campus: A Set Covering Approach**
Eren Özceylan and Ibrahim Mirag Elgüzeln, Industrial Engineering Department, Gaziantep University, 27100, Turkey

**ID 321**  
**Ant Colony Optimization for Solving Capacitated Vehicle Routing Problem in a Carton Manufacturing Company**
Basit Mahmud Shahriar, Department of Industrial & Production Engineering, Bangladesh University of Engineering & Technology, Dhaka, Bangladesh

**ID 217**  
**Automotive assembly industry's Supply chain in the delocalization context: A critical review and an algorithm approach for modeling at a tactical level**
ID 515 The Potential of IoT on the Education Sector in Zimbabwe: The Case of University of Zimbabwe
Farai Francisco Madyira, University of Zimbabwe School of Technology, University of Zimbabwe, Harare, Zimbabwe
Barend W Botha, University of Johannesburg, Johannesburg, South Africa

12:00 pm – 1:30 pm, THURSDAY    Environmental Engineering    Room 3
Session Chair: Ma. Janice J. Gumasing, Mapua University, Intramuros, Manila, Philippines

ID 497 Isolation and Identification of Potential Bacteria Specie in Petroleum Refinery Oily Sludge (PROS)
Vicky Kumar Lohana, Faculty of Civil and Environmental Engineering, Universiti Teknologi PETRONAS, Seri Iskandar, Perak, Malaysia
Shamsul Rahman B M Kutty, Faculty of Civil and Environmental Engineering, Universiti Teknologi PETRONAS, Seri Iskandar, Perak, Malaysia
Lavania A/P Baloo, Faculty of Civil and Environmental Engineering, Universiti Teknologi PETRONAS, Seri Iskandar, Perak, Malaysia

ID 499 The Behavior Study of Vehicle Users on The Availability of Public Parking Spaces
Sri Wiwoho Mudjanarko, Department of Civil Engineering, Narotama University, Surabaya, 60117, Indonesia
Dadang Supriyatno, Department of Civil Engineering, Universitas Negeri Surabaya, Surabaya, 60231, Indonesia
Joewono Prasetijo, Department of Jabatan Teknologi Kejuruteraan Pengangkutan, Universiti Tun Hussein Onn Malaysia
Slamet Winardi, Departement of Computer System, Narotama University, Surabaya, 60117, Indonesia
Rizal Bahaswan, Department of Civil Engineering, Narotama University, Surabaya, 60117, Indonesia
Firdaus Pratama Wiwoho, Department of Civil Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, 60117, Indonesia

ID 493 Ergonomic Design of Tunnel Ventilation System for Underground MRT Station using CFD Simulation
Michael N. Lagundino and Mark Cristian E. Manuel, School of Mechanical and Manufacturing Engineering, Mapua University, Intramuros, Manila, Philippines
Ma. Janice J. Gumasing, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 491 Installation of Pico-Hydro System to Augment the Electricity Requirement of a Rural Community in Victoria Oriental Mindoro, Philippines
Jupele N. Diswe, Kent Andrew C. Dudas, Arvin Jan A. Padilla, Reimbert Randall A. Roca and Engr. Igmedio F. Isla, Jr., School of Mechanical and Manufacturing Engineering, Mapua University, Intramuros, Manila, Philippines
Ma. Janice J. Gumasing, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 616 Maintenance Prediction by Machine learning: Study Review of some Supervised Learning Algorithms
Mouna Tarik and Khalid Jebari, Laboratory of Mathematics and Applications, University Abdelmalek Essaadi (UAE). Faculty of Sciences and Techniques, Tangier, Morocco

12:00 pm – 1:30 pm, THURSDAY    Industry Solutions III    Room 4
Session Chair: Dr. Ephraim Havazvidi, Group Research Manager, Seedco, Zimbabwe

12:00 – 12:20 pm (Thursday, December 10)
Francis Masawi
Independent Energy Expert
Managing Director, Energy and Information Logistics Group Limited (EiL)
Harare, Zimbabwe

12:20 – 12:40 pm (Thursday, December 10)
Dr. Ephraim Havazvidi
Group Research Manager
Seedco
Zimbabwe

ID 581 Genetic Purity Solutions and Associated Algorithms for Conforming Seed Lots or (Any Industrial Blend) to Stipulated Certification Standards of Quality
Ephrame Kudzaiche Havazvidi, SeedCo Rattray Arnold Research Station Hub, Chisipite, Harare, Zimbabwe

12:40 – 1:00 pm (Thursday, December 10)

Professor Innocent Chirisa
Dean of the Faculty of Social and Behavioural Sciences
Professor in the Department of Demography
University of Zimbabwe
Harare, Zimbabwe

ID 371: Social Sciences, Services and Industrialisation in Zimbabwe: Shaping the Debate and Practice
1:00 – 1:20 pm (Thursday, December 10)

Nqobile Munzara  
Executive Assistant to Group CEO  
Financial Securities Exchange  
Harare, Zimbabwe

1:30 – 1:40 pm Break

December 10, 2020 (Thursday)  
Session: 1:40 – 4:30 pm – Zoom Meeting Room 1

Keynote Speakers

1:40 – 2:00 pm Conference Co-Chair Remark: - Zoom Meeting Room 1

2:00 – 2:30 pm Thursday Keynote I - Zoom Meeting Room 1

Prof. Nidhal Rezg, Ph.D.  
Professor and Director of LGIPM  
Director General of UPS DITEX  
University of Lorraine Metz, France

2:30 – 3:00 pm Thursday Keynote II - Zoom Meeting Room 1

Professor Maneesh Kumar  
Professor in Service Operations  
Cardiff Business School  
Cardiff University  
United Kingdom

3:00 – 3:30 pm Thursday Keynote III - Zoom Meeting Room 1

Prof. Ephraim Tobela Gwebu  
Vice Chancellor  
Solusi University  
Bulawayo, Zimbabwe

3:30 – 4:00 pm Thursday Keynote IV - Zoom Meeting Room 1

Professor David Simbi  
Vice-Chancellor  
Chinhoyi University of Technology  
Chinhoyi, Zimbabwe

4:00 – 4:30 pm Thursday Keynote V - Zoom Meeting Room 1

Professor Thong Ngene GOH  
Emeritus Professor, Department of Industrial Systems Engineering and Management  
Former Head of the Industrial and Systems Engineering Department  
Former Dean of Engineering, National University of Singapore
December 10, 2020 (Thursday) - Session: 4:30 – 6:30 pm
Conference Awards Ceremony

December 10, 2020 (Thursday) - Session: 6:30 pm – 8:00 pm

6:30 pm – 8:00 pm (Zimbabwe Time) / 11:30 am - 1:00 pm (USA Eastern Time), THURSDAY
Room 1

Diversity and Inclusion Panel
Sponsored by Ford Motor Company

Panel Chair

Dr. Wilkistar Otieno
Associate Professor and Chair
Industrial and Manufacturing Engineering
Faculty Mentor of Preparing Engineers and Computer Scientist NSF-STEM Scholarship PI. & WiscAMP
University of Wisconsin-Milwaukee
Milwaukee, WI, USA

Panel Speakers

Mrs. Barbara Nhemachena
Quality Promotion and Development Officer
Zimbabwe Council for Higher Education
PhD Candidate Rhodes University, South Africa
Past, Lecturer Faculty of Engineering
Chinhoyi University of Technology, Zimbabwe

Barbara Muyengwa
Head of Marketing and Public Relations
Zimbabwe Women’s Microfinance Bank

Pamela R. McCauley, Ph.D., CPE
Associate Dean for Academic Programs, Diversity, Equity and Inclusion
Professor | Department of Textile and Apparel, Technology and Management (TATM)
Wilson College of Textiles
NC State University

Ms. Sebonkile Thaba
Lecturer in Transport and Supply Chain Management
University of Johannesburg
Johannesburg, Gauteng, South Africa

Professor Donald M. Reimer
Director of Membership and Chapter Development – IEOM Society
President, The Small Business Strategy Group, Detroit, Michigan, USA
Adjunct Faculty – A. Leon Linton Department of Mechanical Engineering
Lawrence Technological University, Southfield, Michigan, USA

6:30 pm – 8:00 pm, THURSDAY
Product Development
Room 2

Session Chair: Tawanda Mushiri, Industrial and Mechatronics Engineering Department, University of Zimbabwe, Harare, Zimbabwe

ID 360 Designing Innovative Stove for Traveler: A Green Product Approach
Zakka Ugih Rizqi, Adinda Khairunisa, Dwi Anggarini and Ali Parkhan, Department of Industrial Engineering, Universitas Islam Indonesia, Yogyakarta, Indonesia

ID 111 The Nation Readiness in Facing Industry 4.0 viewed from Clean Water and High School Teacher Availability toward GDPR without Oil
John Tampil Purba and Sidik Budiono, Department of Management Faculty of Economics and Business, Universitas Pelita Harapan, Tangerang-15811, Indonesia
Gidion P. Adirinekso, Department of Management Faculty of Economics and Business, Universitas Kristen Krida Wacana, Jakarta, Indonesia

ID 134 Investigation of Radial Expansion of Hollow Tubular Devices for Support of Underground Mining Excavations
N. Tshtehma, D. V. V. Kallon and O. T. Laseinde, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 079 Critical Assessment of Cobalt (Co) and Copper (Cu) Extraction from Co-Cu Complex Ores

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ID 125  Improvement in the Manufacturing Process  
Anthony de Souza Sene, Rodrigo Luiz Gigante and Henrique Ewbank de M. Vieira, Facens University, Sorocaba, SP, Brazil

ID 545  Towards Achieving a 3D Print Zimbabwean Traditional Time Telling Clock  
Joyleen Sagandira, Innovation Hub Graduate trainee in Archaeology, University of Zimbabwe, Mt Pleasant, Harare, Zimbabwe  
Ancilla Nhamo, Research and Innovation Specialist, Office of the Vice Chancellor, University of Zimbabwe, MT Pleasant, Harare, Zimbabwe  
Tawanda Mushiri, Senior Lecturer and Deputy Dean, Researcher on Robotics, AI and Health 4.0, Faculty of Engineering and Built Environment, University of Zimbabwe, 630 Churchill Avenue, Mt Pleasant, Harare, Zimbabwe and Industrial and Mechatronics Engineering Department, Faculty of Engineering and the Built Environment, University of Zimbabwe, 630 Churchill Avenue, Harare, Zimbabwe

6:30 pm – 8:00 pm, THURSDAY  
Cybersecurity  
Room 3

ID 500  Human Factors Influence in Information Systems Security: Towards a Conceptual Framework  
Girma Abebe, Accounting and Finance Department, Rift Valley University, Ethiopia, Addis Ababa, Ethiopia  
Lemma Lessa, School of Information Science, Addis Ababa University, Addis Ababa, Ethiopia

ID 519  Private Blockchain-Secured Covid-19 Wearables in Smart Homes Utilising Raspberry Pi Web of Things Gateways  
Patience Mpofu, Department of Computer Engineering, University of Zimbabwe  
Brighton Tafadzwa Mukorera, Cryptosine PBC, Zimbabwe

ID 520  Dealing with Food Supply Chain Management and Self-Sufficiency with Privacy-Preserving IoT Edge and Fog Computing In Household Aquaponics  
Patience Mpofu and Solomon Hopewell Kembo, Computer Engineering, University of Zimbabwe  
Nevil Chityo, Energy Department, Clamore Solar, Zimbabwe

ID 550  Adoption of E-Commerce by Zimbabwean Hotels: An Empirical Study  
Nyasha Caroline Moyo, Women's University in Africa, Harare, Zimbabwe  
Sam Takavarasha Jr, Women's University in Africa, Harare, Zimbabwe

ID 555  Majority Voting Ensemble Learning for Intrusion Detection using Recursive Feature Elimination  
Kudakwashe Zvarevashe, Prudence Kadebu, Addlight Mukwazvure and Fungai Mukora, Faculty of Computer Engineering, Informatics and Communication, University of Zimbabwe, Harare, MI 48075, Zimbabwe  
Tatenda Trust Gotora, Computer Science Department, Midlands State University, Gweru, Zimbabwe

ID 569  Towards Cyber Security: An Evaluation of methods for Malware Analysis  
Prudence Kadebu, Kudakwashe Zvarevashe, Addlight Mukwazvure, and Fungai N Mukora, Faculty of Computer Engineering, Informatics and Communications, University of Zimbabwe, 630 Churchill Avenue, Mount Pleasant, Harare, Zimbabwe  
Innocent Mapanga, Southern Business Solutions, Caramba Park, Phakalane, Gaborone Botswana  
Tatenda T Gotora, Midlands State University, Senga, Gweru, Zimbabwe

6:30 pm – 8:00 pm, THURSDAY  
Multi-Disciplinary  
Room 4

ID 630  A Review of Property Attributes Influence in Hedonic Pricing Model  
Hamza Usman, Department of Real Estate Management, Universiti Tun Hussein Onn Malaysia and Department of Estate Management and Valuation, Abubakar Tafawa Balewa University, Bauchi, Nigeria  
Mohd Lizam and Burhaida Burhan, Department of Real Estate Management, Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia

ID 631  Review of Issues in the Conventional Hedonic Property Pricing Model  
Hamza Usman, Department of Real Estate Management, Universiti Tun Hussein Onn Malaysia and Department of Estate Management and Valuation, Abubakar Tafawa Balewa University, Bauchi, Nigeria  
Mohd Lizam and Burhaida Burhan, Department of Real Estate Management, Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia

ID 632  An Investigation On The Level Of Use Of Lean Principles In The Small And Medium Enterprises; The Case Of The South African Construction Industry: Literature Review  
Davison Makondo and Forbes Chiromo, Department of Mechanical and Industrial Engineering, University of Johannesburg, Doornfontein, 2028, South Africa

ID 633  Investigating the Role of Benchmarking as a Cost Control Measure: Lessons from Selected Restaurants in Johannesburg, South Africa  
Matildah Gumbo, Department of Quality and Operations Management, University of Johannesburg, Auckland Park, Johannesburg, South Africa  
Dr Emaculate Ingwani, Department of Urban and Regional Planning, University of Venda, South Africa  
Dr Walter Musakwa, Department of Urban and Regional Planning, University of Johannesburg, South Africa  
Prof Trynos Gumbo, Department of Urban and Regional Planning, University of Johannesburg, South Africa
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www.ieomsociety.org/ieom/chapters/

IEOM MAPÚA University Student Chapter – Manila, Philippines

IEOM Montreal Student Chapter, Concordia University, Montreal QC, Canada

IEOM Student Chapter at Humber Institute of Technology & Advanced Learning, Toronto, Canada

IEOM KFUPM Student Chapter
IEOM Student Chapter at Shipbuilding Institute of Polytechnic Surabaya

IEOM Student Chapter at Sapir Academic College, Isarel

King Saud University, Riyadh, Saudi Arabia
IEOM Effat University Student Chapter

IEOM PSU Student Chapter

IEOM KAU-Rabigh Student Chapter
IEOM SQU Student Chapter

Facens Student Chapter, Sorocaba, Brazil
Bulacan State University, Philippines

Guru Nanak Dev Engineering College, Punjab, India

Universitas Tarumanagara, Indonesia

University of Malaysia, Sabah
University of Windsor, Canada

Lawrence Technological University

University of New Brunswick at Fredericton, Canada

Government College University Faisalabad (GCUF), Pakistan
IEOM Student Chapter at Universiti Tun Hussein Onn Malaysia (UTHM)

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IEOM Botswana Chapter

IEOM University of Johannesburg Student Chapter
Zagazig University, Egypt

Sheridan College, Brampton, Ontario, Canada

IEOM Student Chapter at Sudan University of Science and Technology, Khartoum

IEOM Student Chapter at Ecole Mohammadia d’Ingénieurs (EMI), Mohammed V University of Rabat, Morocco
<table>
<thead>
<tr>
<th>IEOM Student Chapter at King Abdulaziz University (KAU), Jeddah, Saudi Arabia</th>
<th>IEOM Student Chapter for College of Engineering at Princess Nourah University</th>
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</thead>
<tbody>
<tr>
<td><strong>Faculty Advisor</strong>&lt;br&gt;Dr. Ammar Al-Qahtani, Department of Industrial Engineering</td>
<td><strong>Faculty Advisors</strong>&lt;br&gt;Dr. Kaouther Mohamed Ghachem&lt;br&gt;Dr. Mariam Ali Alasmari</td>
</tr>
<tr>
<td><strong>Chapter Officers</strong>&lt;br&gt;President: Linah Khalid Hussain&lt;br&gt;Vice President:Rawan Hasan Baik&lt;br&gt;Director of Administration: Walaa Othmani&lt;br&gt;Director of Finance: Sara Yahya&lt;br&gt;Director of Programs: Malak Mously&lt;br&gt;Director of Webmaster and Social Media: Shahad Al Malki&lt;br&gt;Director of Communications: Bushra Alkhaldi&lt;br&gt;Director of Membership: Dania Memish</td>
<td><strong>Chapter Officers</strong>&lt;br&gt;President: Sara Alsalm</td>
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2nd IMEOM Dhaka Conference, December 12-13, 2019

IEOM Detroit Office Visits
First GCC Conference in Riyadh, Saudi Arabia, November 26-28, 2019

4th North American IEOM Conference, October 23-25, 2019
Third European IEOM Conference in Pilsen, Czech Republic, July 23-26, 2019

First Central American Symposium on Industry 4.0, Logistics 4.0 and Manufacturing 4.0, San Jose, Costa Rica, June 12-13, 2019
Second IEOM Fellows Induction at the IEOM Bangkok Conference on March 6, 2019
University of Monterrey (UDEM), Mexico Visit, May 29-30, 2018

Faculty of Civil and Industrial Engineering of Sapienza – University of Rome, Italy
6th North American IEOM Conference
Monterrey, Mexico, November 3-5, 2021
Venue: Cintermex Convention Center
http://www.ieomsociety.org/monterrey2020/

Conference Chairs:

Dr. Bernaro Villarreal Celstino
Engineering Department
University of Monterrey, México

Ing. Luz María Valdez de la Rosa
Engineering Department
University of Monterrey, México

Ing. Jacobo Tijerina Aguilera
Director of Extension, Consulting and Research Division
University of Monterrey, México

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11th Annual Conference on Industrial Engineering and Operations Management
Singapore, Hilton Hotel, March 9-11, 2021

IEOM-FlexSim Student Simulation Competition

Computer-based simulation is one of the most powerful tools available today to support problem solving and analyze complex systems. The IEOM-FlexSim Student Simulation Competition is an international simulation competition hosted by the Industrial Engineering and Operations Management Society and FlexSim Software Products, Inc. that provides students with an opportunity to demonstrate their problem-solving, presentation, and discrete-event simulation modeling and analysis skills.

Awards:

- All team members that submit a project will receive a Certification of Participation.
- Up to four teams will be selected as finalists. These teams will continue the competition at the IEOM International Conference in Singapore. The finalists will be ranked in terms of their excellence in simulation modeling and analysis and the overall quality of their project.

Cash Prizes

- Cash prizes for each team, as shown below, and certificates of excellence for each team member, will be presented to the finalists at the conference’s award dinner in Singapore.

| First Prize | $1,500 | Second Prize | $1,000 | Third Prize | $750 | Fourth Prize | $500 |

http://ieomsociety.org/singapore2021/simulation-competition/
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<th>Country</th>
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<tr>
<td>Australia</td>
<td>Queensland University of Technology (QUT), Brisbane</td>
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<td>Bahrain</td>
<td>University of Bahrain</td>
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<td>Bangladesh</td>
<td>Bangladesh Institute of Management (BIM), Military Institute of Science and Technology (MIST), Khulna University of Engineering and Technology (KUET), Khulna University, Khulna University of Engineering and Technology (KUET), Military Institute of Science and Technology (MIST), Bangladesh Institute of Management (BIM)</td>
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<td>Botswana</td>
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<td>Brazil</td>
<td>Federal University of Sao Carlos (UFSCar), Federal University of Santa Catarina (UFSC), University of Sao Paulo (USP) – Sao Carlos, Federal Institute of Sao Paulo (IFSP) – Sorocaba, Faculdade de Engenharia de Sorocaba (FACENS)</td>
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<td>Canada</td>
<td>Concordia University, Humber Institute of Technology and Advanced Learning, Polytechnique Montreal, University of New Brunswick at Fredericton, University of Waterloo, University of Windsor</td>
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<td>Colombia</td>
<td>Fundación Univ. Tecn. Comfenalco, Cartagena, Bolivar, Universidad de Quindio, Universidad de San Buenaventura, Cali, Valle</td>
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<td>India</td>
<td>College of Engineering and Technology, Bhubaneswar, Odisha, India, College of Engineering Guindy (Anna University), Chennai, Guru Nanak Dev Engineering College, Ludhiana, Punjab, Pandit Dendayal Petroleum Univ., Ahmedabad, Gujarat, P.D.A. College of Engineering, Guwahati, Karnataka, India, Vellore Institute of Technology</td>
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<td>Indonesia</td>
<td>Bina Nusantara University (Binus), Indonesia, Institut Teknologi Bandung, Institut Teknologi Sepuluh Nopember (ITS), Sampoerna University, Jakarta, Shipbuilding Institute of Polytechnic Surabaya, Universitas Diponegoro (Undip), University of Indonesia, Universitas Sebelas Maret (UNS), Surakarta, Tarumanagara University</td>
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<td>Malta</td>
<td>Universiti Malaysia Sabah (UMS), Universiti Putra Malaysia (UPM), Universiti Teknologi Malaysia (UTM), Universiti Tun Hussein Onn Malaysia (UTHM), Universiti Utara Malaysia (UUM)</td>
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<td>Sultan Qaboos University</td>
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<td>National University of San Antonio Abad, Cusco, Peru</td>
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<td>Alfaisal University, Effat University, King Abdulaziz University (KAU), King Abdulaziz University, Rabigh, King Fahd University of Petroleum and Minerals (KFUPM), King Saud University (KU), Umm Al-Qura University (UQU), Princes Nourah University (PNU), Prince Sattam Bin Abdulaziz University (PSAU), Prince Sultan University (PSU), Taibah University, University of Tabuk, Tabah University</td>
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<td>Role</td>
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<tr>
<td>Director of Membership and Chapter</td>
<td>Professor Donald M. Reimer</td>
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<td>Dr. Mohammad Khadem</td>
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<td>Associate Program Director</td>
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<td>Ms. Rocksana Ahmed</td>
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IEOM Global Council

Professor Charles Mbohwa
Pro-Vice Chancellor Strategic Partnerships and Industrialisation
University of Zimbabwe
Mt Pleasant, Harare, Zimbabwe

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Professor of Technology Management, Department of Production and Operations Management, Universiti Tun Hussein Onn Malaysia

Prof. Vitor Mendes Caldana
Federal Institute of Sao Paulo (IFSP) – Soroca Campus
Sorocaba, Sao Paulo, Brazil

Dr. Eldon Caldwell
Director, Industrial Engineering Department
Engineering School
University of Costa Rica
San Jose, Costa Rica

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Professor of Operations Management
Head of the Centre for Supply Chain Improvement
College of Business, Law and Social Sciences, Derby Management School
University of Derby, UK

Dr. Umar Al-Turki
Professor Systems Engineering Department
King Fahd University of Petroleum and Minerals
Dhahran, Saudi Arabia

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Graduate Program Coordinator Professor, Department of Industrial and Systems Engineering
North Carolina A&T State University
Greensboro, North Carolina, USA

Dr. Ilham Kissani
Assistant Professor of Engineering & Management Science
School of Science & Engineering
Al Akhawayn University
Ifrane, Morocco

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Emeritus Professor
Department of Industrial and Manufacturing Engineering
Wichita State University
Kansas, USA

Dr. Abdur Rahim
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Fredericton, NB, Canada

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Professor, Industrial and Systems Engineering
Texas A&M University (College Station)
USA

Professor Bernardo Villarreal, Ph.D.
Professor, Department of Engineering
Universidad de Monterey
San Pedro Garza Garcia, NL Mexico
Upcoming Events

Third IMEOM 2020 Dhaka 2020 IEOM Dhaka Conference

Third International Conference on Industrial and Mechanical Engineering and Operations Management (IMEOM)
December 26-27, 2020, Dhaka, Bangladesh, Venue: Krishibid Institution Bangladesh, Farmgate
http://ieomsociety.org/ieom/imeom2020/

11th IEOM International Conference
Hilton Hotel, Orchard Road, Singapore
March 9-11, 2021
Conference Website: www.ieomsociety.org/singapore2021/

2nd South American Conference on Industrial Engineering & Operations Management
São Paulo, Brazil, April 6 – 8, 2021
Venue: Maksoud Plaza Hotel, São Paulo
www.ieomsociety.org/brazil2020/

4th EU International Conference on Industrial Engineering & Operations Management
Rome, Italy, August 3 - 5, 2021
Venue: Sapienza – University of Rome
Conference Website: www.ieomsociety.org/rome2020/

6th North American Conference on Industrial Engineering & Operations Management
Monterrey, Mexico, November 3-5, 2021
Venue: CINTERMEX-Monterrey Convention Center
www.ieomsociety.org/monterrey2020/

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