IEOM Society

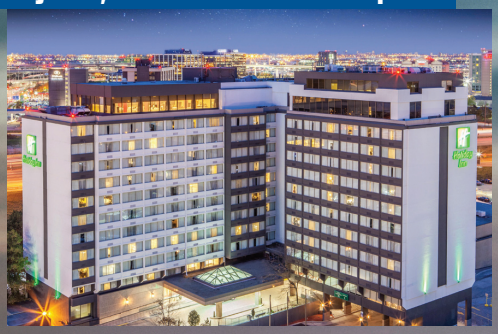
4th North American Conference

on Industrial Engineering and Operations Management

OCTOBER 23–25, 2019

Toronto, Canada

Holiday Inn, Toronto Interna Airport



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UNIVERSITY OF WATERLOO

IEOM Society

4th North American Conference

on Industrial Engineering and Operations Management

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Welcome to the Fourth North American IEOM Conference in Toronto

To All Conference Attendees:

On behalf of the IEOM Society International, we would like to welcome you to Toronto, Canada and the **Fourth North American International Conference on Industrial Engineering and Operations Management**. This unique international conference provides a forum for academics, researchers and practitioners from many industries to exchange ideas and share recent developments in the field of industrial engineering and operations management. This diverse international event provides an opportunity to collaborate and advance the theory and practice of major trends in industrial engineering and operations management. The theme of the conference is "***Industrial Engineering and Operations Management for Industry 4.0"***. The program includes many cutting edge topics of industrial engineering and operations management.

This conference will address many of the issues concerning continuous improvement for quality and service. Our keynote speakers will address some of these issues:

- Dr. Jatin Nathwani, Professor and Ontario Research Chair in Public Policy for Sustainable Energy, Executive Director, Waterloo Institute for Sustainable Energy (WISE), Faculty of Engineering and Faculty of Environment, Fellow, Balsillie School of International Affairs (BSIA), University of Waterloo, Waterloo, Ontario, Canada
- Shalabh Bakshi, Director, Digital Enterprise and MindSphere, Digital Factory Division, Siemens Canada Limited, Ontario
- Dr. Ahmad K. Elshennawy, Ph.D., Professor, Executive Director of The UCF Quality Institute, Dept. of Industrial Engineering and Management Systems, University of Central Florida (UCF), Orlando, Florida, USA
- Jeffrey Jones, Plant Manager, Etobicoke Casting Plant, Fiat Chrysler Automobiles, Canada
- Cheryl Thompson, Founder and CEO of CADIA, Center for Automotive Diversity, Inclusion & Advancement, Detroit, Michigan
- Dr. Gursel Suer, Professor, Industrial and Systems Engineering, Ohio University, Athens, Ohio, USA
- Dr. Andrew K.S. Jardine, Professor Emeritus, Industrial Engineering, Dept. of Mechanical and industrial Engineering, Founding Director of the Centre for Maintenance Optimization & Reliability Engineering (C-MORE), University of Toronto, Canada
- Peter Merrill, President, Quest Management Inc., Canada
- Eric Ayanegui, Director Operations Engineering, Cintas Corp., Houston, Texas, USA
- Todd Deaville, Director of Engineering and R&D, Magna International Inc., Toronto, Canada
- Dr. Samir Elhedhli, Professor, Department of Management Sciences, Faculty of Engineering, University of Waterloo, Canada
- Dr. Birsen Donmez, Associate Professor, Department of Mechanical and Industrial Engineering and Canada Research Chair in Human Factors and Transportation, University of Toronto, Ontario, Canada
- Dr. Devashis Mitra, Dean, Faculty of Business Administration, University of New Brunswick Fredericton, Canada

We will continue to offer special session on Global Engineering Education. This session will feature distinguished speakers who will discuss workforce readiness. Featured speakers will address engineering education challenges and opportunities. The Industry Solutions Track will address industry needs to survive in a highly competitive environment. This session will bring together distinguished practitioners who are dedicated to Industry 4.0 and will share their experiences in the implementation of the process.

The IEOM Society would like to express our deep appreciation to our sponsors, university partners, organization partners, exhibitors, authors, reviewers, keynote speakers, panelists, track chairs, advisors, the local committee and the many volunteers who have given so much of their time and talent to make this unique international conference an overwhelming successful event.

We would also like to thank the students who are participating in this event. Your Conference Organizing Committee wishes you an enjoyable learning experience at the conference and memorable adventure exploring Toronto.

We look forward to meeting you in Toronto!

Dr. Abdur Rahim
Honorary Chair
University of New Brunswick at Fredericton, Canada

Dr. Ali ElKamel
Conference Co-Chair
University of Waterloo
Ontario, Canada

Dr. Srinivas Ganapathyraju
Conference Co-Chair
Sheridan College Institute of Technology & Advanced Learning
Brampton, Ontario, Canada

Ahad Ali, Ph.D.
Conference Co-Chair
Lawrence Technological University
Southfield, Michigan, USA

Steven Sibrel
Industry Chair
Harman / Becker and Past Chair, ASQ Greater Detroit, USA

Conference Program

October 22, 2019 (Tuesday)

13:00 – 20:00 Registration and Toyota Plant Tour
18:00 – 19:00 NSF Student Travel Support Awardees Orientation

October 23, 2013 (Wednesday)

07:00 – 17:00 Registration
08:00 – 09:30 Parallel Sessions – Rooms 1-6
09:30 – 9:40 Welcome Address
09:40 – 10:20 Opening Keynote I: **Dr. Jatin Nathwani,** Professor and Ontario Research Chair in Public Policy for Sustainable Energy, Executive Director, Waterloo Institute for Sustainable Energy (WISE), Faculty of Engineering and Faculty of Environment, Fellow, Balsillie School of International Affairs (BSIA), University of Waterloo, Waterloo, Ontario, Canada
10:20 – 11:00 Opening Keynote II: **Shalabh Bakshi**, Director, Digital Enterprise and MindSphere, Digital Factory Division, Siemens Canada
11:00 – 11:30 Networking Break
11:30 – 12:00 Wednesday Keynote III: **Ahmad K. Elshennawy,** Ph.D., Professor, Executive Director of The UCF Quality Institute, Dept. of Industrial Engineering and Management Systems, University of Central Florida (UCF), Orlando, Florida, USA
12:00 – 12:30 Wednesday Keynote IV: **Jeffrey Jones**, Plant Manager, Etobicoke Casting Plant, Fiat Chrysler Automobiles, Canada
13:00 – 14:30 Wednesday Lunch Keynote: **Dr. Gursel Suer**, Professor, Industrial and Systems Engineering, Ohio University, Athens, OH, USA
14:30 – 16:00 Parallel Sessions – Rooms 1-6
16:00 – 16:30 Networking Break
16:30 – 18:00 Parallel Sessions – Rooms 1-6
18:00 – 20:00 NSF Student Travel Support Awardees Meeting

October 24, 2019 (Thursday)

07:00 – 17:00 Registration
08:00 – 09:30 Parallel Sessions – Rooms 1-6
09:40 – 10:20 Thursday Keynote I: **Dr. Andrew K.S. Jardine**, Professor Emeritus of Industrial Engineering, Dept. of Mechanical and industrial Engineering, Founding Director of the Centre for Maintenance Optimization & Reliability Engineering (C-MORE), University of Toronto, Canada - Algonquin Rooms 1-4
10:20 – 11:00 Thursday Keynote II: **Peter Merrill**, President, Quest Management Inc., Canada - Algonquin Rooms 1-4
11:00 – 11:30 Networking Break
11:30 – 12:00 Thursday Keynote III: **David Pistrui, Ph.D.,** Industry Liaison, Director, Graduate Recruiting and Clinical Professor of Engineering, College of Engineering & Science, University of Detroit Mercy, Michigan, USA - Algonquin Rooms 1-4
12:00 – 12:30 Thursday Keynote IV: **Dr. Darrell Kleinke,** Professor of Mechanical Engineering, Director of Professional Engineering Programs, University of Detroit Mercy, Detroit, Michigan, USA - Algonquin Rooms 1-4
13:00 – 14:30 Thursday Lunch Keynote: **Eric Ayanegui,** Director Operations Engineering, Cintas Corp., Houston, Texas, USA - Algonquin Rooms 1-4
14:30 – 16:00 Parallel Sessions – Rooms 1-6
16:00 – 16:30 Networking Break
16:30 – 18:00 Parallel Sessions – Rooms 1-6
18:00 – 20:00 **Poster Session**

October 25, 2019 (Friday)

07:00 – 17:00 Registration
08:00 – 09:30 Parallel Sessions – Rooms 1-6
09:40 – 10:20 Friday Keynote I: **Todd Deaville,** Director of Engineering and R&D, Magna International Inc., Toronto, Canada - Algonquin Rooms 1-4
10:20 – 11:00: Friday Keynote II: **Dr. Samir Elhedhli**, Professor, Department of Management Sciences, Faculty of Engineering, University of Waterloo, Waterloo, Ontario, Canada - Algonquin Rooms 1-4
11:00 – 11:30 Networking Break
08:00 – 11:30 High School and Middle School STEM Poster Competition
11:30 – 12:00 Friday Keynote III: **Birsen Donmez**, Ph.D., Associate Professor, Department of Mechanical and Industrial Engineering and Canada Research Chair in Human Factors and Transportation, University of Toronto, Ontario, Canada - Algonquin Rooms 1-4
12:00 – 12:30 Friday Keynote IV: **Cheryl Thompson**, Founder and CEO of CADIA, Center for Automotive Diversity, Inclusion & Advancement, Detroit, Michigan, USA - Algonquin Rooms 1-4
13:00 – 14:30 Friday Lunch Keynote: **Mr. Lee Childers**, Chief Executive Officer, Tooling Tech Group, Michigan, USA - Algonquin Rooms 1-4
14:30 – 16:00 Parallel Sessions – Rooms 1-6
16:00 – 16:30 Networking Break
16:30 – 18:00 Parallel Sessions – Rooms 1-6
19:00 – 22:00 **CONFERENCE AWARD DINNER** - Ballroom

Awards Keynotes:

- **Dr. Devashis Mitra**, Dean, Faculty of Business Administration, University of New Brunswick, Fredericton, Canada
- **Dr. Abdur Rahim**, Professor, Faculty of Business Administration, University of New Brunswick, Fredericton, Canada

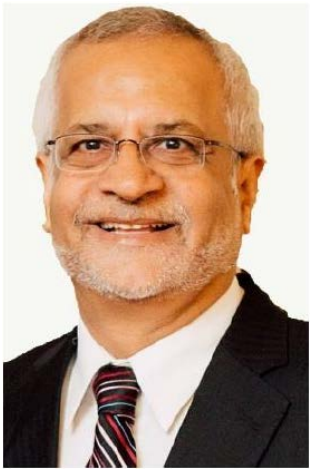
October 26, 2019 (Saturday)

08:00 – 15:00 Niagara Falls Tour

Keynote Speakers

9:30 am, Thursday, October 23, 2019 - Welcome Address

9:40 am, Thursday, October 23, 2019 - Opening Keynote I



Dr. Jatin Nathwani

Professor and Ontario Research Chair in Public Policy for Sustainable Energy
Executive Director, Waterloo Institute for Sustainable Energy (WISE)
Faculty of Engineering and Faculty of Environment
Fellow, Balsillie School of International Affairs (BSIA)
University of Waterloo
Waterloo, Ontario, Canada

Professor Nathwani is the founding Executive Director, Waterloo Institute for Sustainable Energy (WISE) and holds the prestigious Ontario Research Chair in Public Policy for Sustainable Energy at the University of Waterloo.

Professor Nathwani, with Co-Director, Prof Joachim Knebel (Karlsruhe Institute of Technology, Germany) has established a platform for a Global Change Initiative - Affordable Energy for Humanity (AE4H). The consortium comprises 150+ leading STEM and social science researchers, energy access thought leaders and practitioners from 50 institutions in 30 countries committed to eradicating energy poverty by 2030.

WISE brings together the expertise of UW faculty members to develop and implement large-scale multi-disciplinary research projects in collaboration with business, industry, governments and civil society groups. The vision of the Institute is simple: clean energy, accessible and affordable for all.

Prior to his appointment at the University in 2007, Professor Nathwani worked in a leadership capacity in the Canadian energy sector over a 30 year period. He brings a unique combination of academic perspectives with extensive experience in the business sector that includes corporate planning and strategy, energy sector policy developments, power system planning, environmental and regulatory affairs and research program management.

Professor Nathwani serves on several Boards at the provincial and national levels and has appeared frequently in the media (print, TV, radio) and has over 100 publications related to energy policy, environment and risk management, including seven books. He is a Registered Professional Engineer (PEO) in the Province of Ontario, Canada.

10:20 am, Thursday, October 23, 2019 - Opening Keynote II

Shalabh Bakshi

Director, Digital Enterprise and MindSphere
Digital Factory Division
Siemens Canada Limited
Oakville, Ontario, Canada

Digital Enterprise "Industry 4.0" and Mindsphere "Open Cloud based IoT Operating system"

As Director of Digital Enterprise at Siemens Canada, Shalabh Bakshi is responsible for helping Canadian customers realize their "Digital Enterprise" by providing them with Digitalization and Industry 4.0 roadmaps and technological solutions that will drive the digital transformation within their organizations. In addition, he leads Siemens Canada's MindSphere; Siemens open, cloud-based IoT operating system.

For both responsibilities, Mr. Bakshi sets the strategic direction, engages actively in business development, as well as marketing, integration and service delivery to support his teams and enable various product portfolios across software and automation.

His background is a mix of consulting, sales/business development, strategy and technology leadership. Prior to his current role, Mr. Bakshi has held many leadership positions with Siemens since joining the organization in 2012. These include Business Head for Digitalization Consulting, Division Sales Strategy and Business Development in the ASEAN region. Most recently he developed and established a new business model for Siemens which received funding from the Singapore government.

Mr. Bakshi is an established Technology thought leader thriving on engineering excellence, Cloud and Big data, Simulation and other digital technologies. Mr. Bakshi has extensive international and cultural experience and has worked globally with large multinational organizations.

In addition to being an Electronics & Communication Engineer, Mr. Bakshi also holds a Masters in International Business from University of Birmingham, UK. He spends his free time mentoring youngsters on strategy and technology projects and enjoys travelling.

11:00 Networking Break

11:30 - 12:00 Tuesday Keynote III

Ahmad K. Elshennawy, Ph.D.

Professor, Executive Director of The UCF Quality Institute
Department of Industrial Engineering and Management Systems
University of Central Florida (UCF), Orlando, Florida, USA

Ahmad K. Elshennawy, Ph.D. is Professor and Executive Director of The UCF Quality Institute in the Department of Industrial Engineering and Management Systems at the University of Central Florida (UCF). Prior to joining UCF, he served as a Guest Researcher with the Precision Engineering Division of the National Institute of Standards and Technology (NIST) in Gaithersburg, Maryland for two years.

Dr. Elshennawy combines over 30 years of international experience with exemplary academic record in the areas of quality management and strategic improvement, as a researcher, academician and a consultant in the United States and different parts of the world. He is the co-author of the Certified Quality Engineer Handbook (1st and 2nd Editions), the Certified Quality Technician Handbook, and the Certified Quality Inspector Handbook (ASQ publications) and Manufacturing Processes and Materials (SME publication). Elshennawy received a BS and MS degrees in Production Engineering from Alexandria University and M.Eng. & Ph.D. degrees in Industrial Engineering from Penn State University. His teaching and research areas of expertise include Quality and Reliability Engineering, Quality Systems and Management, Six Sigma Quality/Lean Six Sigma, Statistical Process Control, Lean Service, and Business and process Performance Improvement and Management.

Elshennawy is a Fellow of the American Society for Quality (ASQ), Senior Member of the Institute of Industrial Engineers (IIE), and the Society of Manufacturing Engineers (SME). He is an ASQ Certified Quality Engineer (CQE) and a Certified Reliability Engineer (CRE) and is a Certified Lean Six Sigma Master Black Belt. Dr. Elshennawy has served on the Editorial Review Board of Quality Press of the American Society for Quality and currently serves on the Editorial Board of Quality Progress and is a Senior Editor for the Journal of management and Engineering Integration. He is also the Director of Development and Quality Control of the Association for Industry, Engineering, and Management Systems (AIEMS).

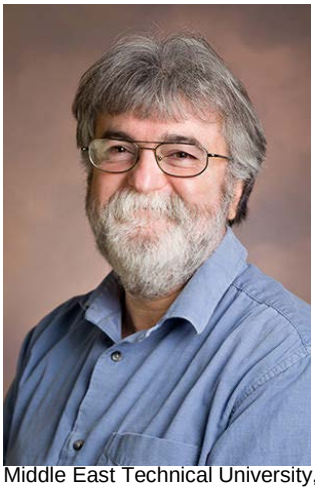
12:00 - 12:30 Tuesday Keynote IV

Jeffrey Jones

Plant Manager
Etobicoke Casting Plant
FCA Fiat Chrysler Automobiles, Ontario, Canada

Jeff Jones is the Head of Plant Operations at Fiat Chrysler Automotive (FCA), Etobicoke Casting Plant (ECP) located in Toronto, Ontario. ECP was awarded Bronze status in World Class Manufacturing (WCM) in March 2019. In this role Jones is responsible for all day-to-day plant operations of High Pressure Die casting (Aluminum); including meeting quality standards, ensuring compliance with health, safety and environmental regulations as well as financial and production targets. Prior to his current role, Jones spent 16 years in Powertrain Manufacturing at FCA and held positions of increasing responsibility ranging from operations in powertrain transmissions manufacturing to leading World Class Manufacturing expansion at several facilities in North America. Jones joined FCA in 2000 after a ten-year career in Law Enforcement and four years in the United States Air Force serving at Ramstein Air Base (Germany), the Headquarters for United States Air Force in Europe (USAFE). Committed to community service Jones is involved in many Charitable efforts such as United Way, Salvation Army, American Heart Association, Habitat for Humanity, Down Syndrome (Indiana), Daily Bread Foodbank (Toronto). Jones earned a Master of Science degree from Indiana State University (2005) and Master of Science degree from Purdue University (2006).

13:30 – 14:00 Wednesday Lunch Keynote



Dr. Gursel Suer

Professor
Department of Industrial and Systems Engineering
Ohio University
Athens, Ohio, USA

Gursel A. Suer joined the Industrial and Systems Engineering Department at Ohio University after working 12 years at the University of Puerto Rico-Mayaguez. He is on the editorial board of various journals. He currently serves as the manufacturing area editor of the Computers and the Industrial Engineering Journal. He has co-chaired two Computers and Industrial Engineering Conferences (1997-Puerto Rico, 2005-Istanbul). He also initiated Group Technology/Cellular Manufacturing Conferences held in Puerto Rico (2000), Ohio (2003), Netherlands (2006), and Japan (2009). Most of his research has been motivated by his projects and observations in industrial settings. He has edited seven conference proceedings and three special issues with different journals. He has published more than 110 papers in journals, edited books, conference proceedings and made more than 100 technical presentations. He has also advised more than 40 graduate students. His research interests are cellular system design, production planning, inventory control and multiple assembly design. All Degrees Earned: Ph.D., Industrial Engineering, Wichita State University, 1989; M.S., Industrial Engineering, Middle East Technical University, 1985; and B.S., Industrial Engineering, Middle East Technical University, 1982. Awards are: ISE White Teaching Award, Ohio University, 2009, Baxter Distinguished Professor in Manufacturing, UPR-Mayaguez, Co-holder, (1999-2000), Distinguished Professor of the Industrial Engineering Department, UPR-Mayaguez, (1996-1997), Baxter Distinguished Professor in Manufacturing, UPR-Mayaguez, Co-holder, (1994-1995) and Phi Kappa Phi Honor Society.

9:40 am - 10:20 am, October 24, 2019 - Thursday Morning Keynote I

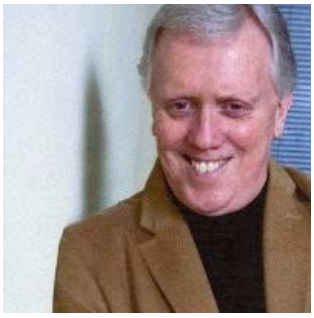
Andrew K.S. Jardine, PhD, P.Eng., CEng, FCAE, FIIE, FISEAM (Hon.)
Professor Emeritus, Industrial Engineering
Department of Mechanical and industrial Engineering
Founding Director of the Centre for Maintenance Optimization & Reliability Engineering (C-MORE)
University of Toronto, Canada

Dr. Andrew K.S. Jardine was Founding Director of the Centre for Maintenance Optimization & Reliability Engineering (C-MORE). He is author of economic life software AGE/CON and PERDEC, licensed to organizations in the transportation, mining, electrical utilities, and process industries, and author of OREST software used for optimizing component preventive replacement decisions and forecasting demand for spare parts. In addition to writing software, C-MORE has developed and commercialised two software packages: EXAKT for the optimization of condition based maintenance decisions and SMS for optimization of stock holding policies for slow-moving expensive capital spares.

Dr. Jardine is a prolific researcher and advocate of advances in maintenance decision-making and reliability engineering. His views are sought after by industry, he has published numerous books and papers, and he presents his work at professional seminars and conferences worldwide. His first maintenance-related book, Maintenance, Replacement and Reliability (1973) is in its 6th printing. He is co-editor with J.D. Campbell of Maintenance Excellence: Optimizing Equipment Life Cycle Decisions (2001); the second edition was published in 2010 as Asset Management Excellence: Optimizing Equipment Life-Cycle Decisions. The second edition of the bestselling Maintenance, Replacement & Reliability: Theory and Applications (2006), co-authored with Dr. A.H.C. Tsang, appeared in 2013.

In 1998, Professor Emeritus Jardine was the first recipient of the Sergio Guy Memorial Award from the Plant Engineering and Maintenance Association of Canada in recognition of his outstanding contribution to the maintenance profession and was elected a Fellow of both the Institute of Industrial Engineers and the Canadian Academy of Engineering in 2013. In 2013 he also received the Lifetime Achievement award from the International Society for Engineering Asset Management. In 2014 he was admitted to the status of Honorary Fellow of the International Society of Engineering Asset Management.

10:20 am - 11:00 am, October 24, 2019 - Thursday Morning Keynote II



Peter Merrill
President, Quest Management Inc.
Canada

Knowledge and Skills for Industry 4.0

Peter Merrill is a Keynote Speaker on Innovation and has keynoted at events such as the World Conference on Quality. As Chief Executive of one of the leading Design Brands in the Europe he has been an Innovator in one of the most demanding markets. He is an Engineer, an Artist and a Writer and has led Innovation in the fields of both Graphic Art and Engineering. He is Head of Delegation for the Canadian Committee to ISO/TC279 on Innovation Management. He is also chair of the ASQ Innovation Think Tank. He led the International Working Group which developed the ISO Guideline on 'People Involvement' in Management Systems and sees the best Innovation coming from the 'Collective Knowledge' of an Organization. He is one of North America's foremost authorities on Management Systems which he has implemented in such innovative companies as IBM, A.I.G., R.I.M. and Solectron. He is author of the books "Innovation Generation", "Do It Right the Second Time"and 'Innovation Never Stops'. Peter Merrill emphasizes the importance of developing an Innovative Culture which leads to innovation of both your practices and your business model as well as your products.

11:00 - 11:30 Networking Break

11:30 am – 1:00 pm, Thursday, October 24 - Industry 4.0 KEYNOTE - **Industry 4.0 and Talent Pipeline**

David Pistrui, Ph.D.
Industry Liaison
Director, Graduate Recruiting
Clinical Professor of Engineering
College of Engineering & Science
University of Detroit Mercy
Detroit, Michigan, USA

David Pistrui, Ph.D., is an executive, educator, and entrepreneur, with over 35 years of experience serving the corporate, nonprofit, and education sectors. Dr. Pistrui has held corporate leadership positions with both Fortune 500, and midsized companies including VideoCart, MediaOne, Parade Publications, Time Incorporated, and Purex Industries. Dr. Pistrui has worked with a wide range of organizations in over 60 countries including FCA, Ford, Tenneco, Siemens, GM, Eaton, Dentsu, FedEx, KPMG, AT Kearney, Motorola, Wrigley, IBM, GrubHub, Comarch, Minnetronix, Cleversafe, Automation Alley and the World Economic Forum among many others.

Currently Dr. Pistrui is leading a consortium of ten Michigan universities and colleges (and their industry partners) in a multi-year applied research project focusing on Industry 4.0 (the fourth industrial revolution). Dr. Pistrui has served as an economic advisor to the states of Michigan, North

Carolina and Illinois, Austrian Federal Economic Chamber, AutoCluster Styira (Austria), Bahrain Institute of Banking and Finance, Middle East Economic Digest, and the Family Firm Institute. As an educator, he has held faculty appointments at the University of Detroit Mercy, Fayetteville State University (North Carolina), Illinois Institute of Technology, DePaul University, and Alfred University. He has held endowed chairs in entrepreneurship and family business. Dr. Pistrui has co-authored over 60 publications in the areas of talent development, artificial intelligence, robotics, technology entrepreneurship, strategy, family business, and engineering education.

Dr. Pistrui holds a Ph.D. in Applied Economics (Cum Laude) Entrepreneurship and Strategy, from Universität Autonoma de Barcelona, Spain, and a Ph.D., in Sociology from the University of Bucharest, Romania. He earned a Master of Arts in Liberal Studies degree from DePaul University (Chicago) and a Bachelor of Business Administration, in Marketing and Economics from Western Michigan University.

Dr. Darrell Kleinke
Professor of Mechanical Engineering
Director of Professional Engineering Programs
University of Detroit Mercy
Detroit, Michigan, USA

Dr. Darrell Kleinke, Professor of Mechanical Engineering at the University of Detroit Mercy (UDM), teaches Mechanical Engineering, Engineering Management, Technical Entrepreneurship and Product Development courses. His courses include topics on innovation, creativity, and the innovation culture. Dr. Kleinke is currently the Director of the Detroit Mercy engineering graduate programs and he was formerly the Chair of the Mechanical Engineering Department. He holds BS and MS degrees in Mechanical Engineering from the University of Michigan, and he holds a Ph.D. in Mechanical Engineering from Wayne State University. Dr. Kleinke gained extensive industrial experience prior to joining UDM in 2008. His work included design and release of automotive body systems at Ford Motor Company, structural testing and servo-hydraulic road simulation testing at a tier 1 supplier, as well as product development engineering at General Motors corporation. Dr. Kleinke's research interests and publications are related to mechanical design, multi-disciplined collaboration, engineering education, innovation, entrepreneurship, and systems engineering. Dr. Kleinke provides consulting services through Innovation in Action Inc., where he conducts workshops in the application of systematic innovation tools, product architecture and systems engineering.

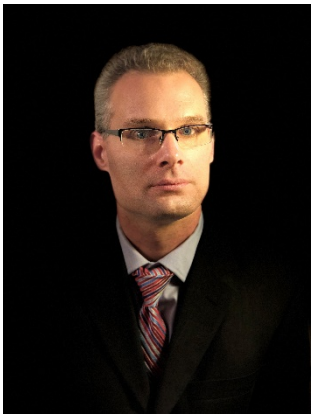
1:00 pm - 2:30 pm, October 24, 2019 - Thursday Networking LUNCH

13:30 – 14:00 Thursday Lunch Keynote:

Eric Ayanegui, CPMM, CRL
Director Operations Engineering
Cintas Corporation
Houston, Texas, USA

Mr. Eric Ayanegui is currently the director of Operations Engineering of CINTAS. As one of the technical leaders at CINTAS, he has been directing engineering, reliability, quality and safety initiatives across 210 industrial sites across North America and China. He has over 20 years of experience in the industrial laundry industry and has been involved in industrial leading efforts in Reliability and Safety. He is a member of the CINTAS Corporate Executive Faculty teaching Reliability and a certified Plant Maintenance Manager and Certified Reliability Leader. He is a member of Industrial Engineering Academy of Distinguished Alumni of UH and has served on the advisory board of Industrial Engineering Department at UH since 2015. He holds a BS degree in Industrial Engineering from the University of Houston.

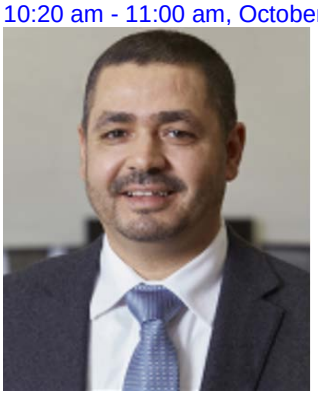
9:40 am - 10:20 am, October 25, 2019 - Friday Morning Keynote I –



Todd Deaville
Director of Engineering and R&D
Magna International Inc., Toronto, Canada

Todd Deaville joined Magna International in 1997 and currently serves as Director, Engineering and R&D, supporting Magna's Corporate Engineering and Research and Development team on a global basis. In this role he works with academic, industry and startup company partners to identify, technically assess and lead and/or support product development activities for new technology commercialization. Todd has worked for Magna in the automotive industry for 20 years, beginning with an apprenticeship in tool and die engineering and plastics molding. This was followed by various engineering, customer liaison, operational improvement and product and process development roles in plastics/composites and Class A paint facilities. Todd has been involved with numerous advanced engineering projects, business analysis and R&D strategy development for both Magna's automotive and non-automotive businesses. He has worked on and/or directed advanced R&D programs with OEMs, startup to multi-national scale partners, government agencies and University and private research organizations globally. A native of Canada, he received his Bachelors of Applied Science Degree from Dalhousie University in 1997 and Masters' of Mechanical Engineering Degree from the University of Toronto in 2010, based on the development of a novel automotive acoustics actuator. Todd has coauthored research papers and has been awarded several patents related to automotive products and manufacturing methods.

10:20 am - 11:00 am, October 25, 2019 - Friday, Morning Keynote II



Dr. Samir Elhedhli

Professor, Department of Management Sciences, Faculty of Engineering
University of Waterloo, Canada

Dr. Samir Elhedhli is Professor and Chair of the Department of Management Sciences at the University of Waterloo. He holds a BSc and MSc from Bilkent University and PhD from McGill University. He has research interests in Large-scale Optimization and Data Analytics with applications in Logistics, Supply chain, and Service Systems Design. His work has appeared in scientific journals such as Management Science, Mathematical Programming, Manufacturing and Service Operations Management, INFORMS Journal on Computing, IISE transactions, and European Journal of Operational Research among others. He held grants from NSERC, CFI, OCE and MITACS and collaborated with industries in aircraft manufacturing, airline scheduling, and warehouse management. He was Chair of the Department of Management Sciences from 2014 to 2018. He served as president of the Canadian Operational Research Society (CORS) in 2011-2012. He is currently the Education Chair and co-Editor-in-Chief of their flagship journal INFOR. He is the recipient of the CORS Service Award in 2013 and the University of Waterloo's distinguished and outstanding performance awards in 2005, 2006, 2007, 2009, 2012 and 2016.

11:30 am - 12:00 pm, October 25, 2019 – Friday Keynote

Birsen Donmez, Ph.D.

Associate Professor, Department of Mechanical and Industrial Engineering
Canada Research Chair in Human Factors and Transportation
University of Toronto, Ontario, Canada

Birsen Donmez is an Associate Professor at the University of Toronto, Department of Mechanical & Industrial Engineering and is the Canada Research Chair in Human Factors and Transportation. She received her BS in Mechanical Engineering from Bogazici University in 2001, her MS (2004) and PhD (2007) in industrial engineering, and her MS in statistics (2007) from the University of Iowa. Before joining the University of Toronto, she spent two years as a postdoctoral associate at the Massachusetts Institute of Technology. Her research focuses on operator attention in multitask activities, decision support under uncertainty, and human automation interaction, with applications in surface transportation, healthcare, and unmanned vehicle operations. Her selected honors include the inaugural Stephanie Binder Young Professional Award from the HFES Surface Transportation Technical Group and an Ontario Early Researcher Award. She serves on multiple Transportation Research Board committees and as an associate editor for IEEE Transactions on Human-Machine Systems.

12:00 pm - 12:30 pm, October 25, 2019 - Friday Keynote

Cheryl Thompson

Founder and CEO of CADIA
Center for Automotive Diversity, Inclusion & Advancement, Detroit, Michigan

Talk Title: ***Hitting the Gas to Excel in Diversity and Inclusion within the Industrial Sector***

Cheryl Thompson is the founder of the Center for Automotive Diversity, Inclusion & Advancement (CADIA). CADIA supports Diversity and Inclusion for the Automotive Industry by providing professional development for individuals, along with resources, programs and tools that drive organizational evolution. A veteran of the automotive industry, Cheryl has over 30 years of experience at Ford Motor Company and American Axle and Manufacturing in positions ranging from skilled trades, operations, engineering and global leadership. She is trained in diversity and inclusion, career and leadership coaching and is Six Sigma trained and certified as a Black Belt. Cheryl has been recognized as a 2019 Influential Women in Manufacturing Honoree, a 2019 Corp Magazine Salute to Diversity award winner, and is the recipient of two Diversity and Inclusion Awards from Ford Motor Company. A sought-after voice and speaker in the automotive, manufacturing and aerospace & defense industries, Cheryl has performed keynote addresses, workshops and breakout sessions for a number of companies and events, including TEDx Windsor, Women in Manufacturing (WiM), the American Automotive Summit, and Society of Women Engineers (SWE).

1:00 pm - 2:30 pm, October 25, 2019 - Friday Networking LUNCH Buffet
1:30 – 2:00 Friday Lunch Keynote:

Mr. Lee Childers

Chief Executive Officer, Tooling Tech Group
Macomb, Michigan, USA

Lee Childers is the Chief Executive Officer at Tooling Tech Group (TTG), a provider of highly engineered automation and tooling solutions to a variety of industries. He has over 30 years' experience leading multi-site global operations, focusing on improving revenue streams and integrating companies though implementation of metric driven world class processes and systems. At TTG, Childers is driving the business units to function as one company through the integration of standardized reporting metrics, implementation of lean manufacturing, best practice sharing, visual management and operator engagement. Under his leadership, the company's revenue has grown by more than 35% to become the largest tooling company in North America. Prior to joining Tooling Tech Group in March of 2018, Mr. Childers served as COO of Crowne OE Group and has also held multiple leadership positions with IAC and Lear Corporation. Mr. Childers is a graduate of Southern Illinois University, Carbondale, with a BA in chemistry and a BS in business and administration, with a focus on business management and operations. He is also a member of the Mechanical Engineering Advisory Board for Lawrence Technological University.

7:00 pm - 10:00 pm, Friday, October 25, 2019 - CONFERENCE AWARD DINNER

7:30 – 7:45 pm Awards Keynote

Dr. Devashis Mitra
Dean, Faculty of Business Administration
University of New Brunswick
Fredericton, Canada

Devashis Mitra, Dean of the Faculty of Management, and Professor of Finance and Entrepreneurship, joined the faculty in 1991 and is a member of the Entrepreneurship and Finance Areas. Dr. Mitra's teaching interests are in Corporate Finance, Entrepreneurial Finance, and International Financial Management in the BBA and MBA programs. He received a UNB Merit Award in 2001 and again in 2012 for his performance in research, service, and teaching. He also was a recipient in 2002 of the faculty's Excellence in Research Award for performance across his career. Dr. Mitra was Associate Dean, Research and Strategic Initiatives from July 1, 2012 until June 30, 2013. He previously served as Associate Dean, International Programs, from 2004 to 2008 and Associate Dean (Accreditation and Research) during the 2010-11 academic year. Prior to pursuing an academic career, Dr. Mitra worked for Price Waterhouse and for Indian Aluminum Company, then a subsidiary of Alcan Aluminum. He also holds a Fellow designation from the Institute of Chartered Accountant of India. He has been a visiting scholar has held teaching assignments at institutions in India, Indonesia, Trinidad, Poland and Singapore. His research interests are entrepreneurial finance such as venture capital and crowdfunding, financial institutions, governance, dividend policy, corporate capital structure, international capital budgeting and financial markets. He is the co-author of a widely adopted textbook on corporate finance and his research has been published in journals such as: Applied Economics, Financial Management (FM Letters), the Financial Review, Journal of Business Finance and Accounting, the Journal of Financial Studies, the Journal of Small Business Management, Journal of Economics and Business, Journal of Small Business and Entrepreneurship, International Journal of Corporate Governance, Mid-Atlantic Journal of Business, and Midwestern Journal of Business & Economics. Dr. Mitra is co-author of a widely adopted textbook in Corporate Finance published by McGraw-Hill Ryerson, now in its 6th Canadian edition.

Dr. Abdur Rahim
Professor of Quantitative Methods
Faculty of Faculty of Business Administration area
University of New Brunswick
Fredericton, NB, Canada

Abdur Rahim joined the Faculty of Business Administration in 1983 and is a member of the Quantitative Methods area. He teaches Production and Operations Management, Total Quality Management, Project Management and Advanced Statistics for Finance & Economics in the BBA and MBA programs. Dr. Rahim received the UNB Merit Award in 1992, 2000, 2009 and 2014 for his performance in research, service, and teaching. He received the 2012, 2015 and 2018 IEOM Award on Industrial Engineering and Operations Management (IEOM) in recognition and appreciation of his outstanding lifelong contribution. He received the Faculty of Business Administration's Excellence in Research Award in 1999 for outstanding performance across his career. In recognition of his performance in research on integrated optimization modelling in quality control, production planning and control, inventory control and maintenance, Dr. Rahim has been awarded continuous funding from Natural Science and Engineering Council of Canada (NSERC) since joining UNB.

Dr. Rahim is a recognized world expert in Total Quality Management. He has taught a wide range of courses in universities in Canada, Bangladesh, Malaysia, and Saudi Arabia. He has worked as a consultant for UNDP (United Nations Development Program) and FAO (Food and Agriculture Organizations of the United Nations). Dr. Rahim has delivered numerous invited talks around the world that have dealt with statistical process control issues. He is a member of the Editorial Boards for Journal of Economic Quality Control, Journal of Quality in Maintenance Engineering, Journal of Quality Engineering and Technology, International Journal of Six-Sigma and Competitive Advantages, and International Journal of Experimental Design and Process Optimization. He also served as a member of the Advisory or Editorial boards for: Engineering Optimization, Quality Engineering, International Journal of Production Research, and International Journal of Systems Science. Dr. Rahim's research interests are quality control, inventory control, reliability, maintenance and production and operations management. He has published three books and more than 100 refereed journal articles. He has also published 6 refereed book chapters.

Dr. Rahim has been active in conducting international conferences on industrial engineering and operations management (IEOM) at various parts of the world. He supervised several masters and doctoral candidates at the University of New Brunswick and King Fahd University of Petroleum and Minerals in Saudi Arabia. Dr. Rahim and his colleague Dr. Pradeeb Banerjee have the rare distinction of having mathematical models named after them as they together developed the Rahim-Banerjee Models in Statistical Process Control. He also served as an honorary Chair, Program Chair, Session Chair of numerous international conferences.

Distinguished Speakers – Industry Solutions / Industry 4.0

Wednesday (October 23, 2019)

Session I: Industry Solutions / Industry 4.0

8:00 am – 9:40 am (Wednesday, October 23) - MacDonald Room

Session Chair: Dr. Usha Ramanathan, Nottingham Trent University, UK

8:00 – 8:20 (Wednesday)

Eliane R. Rodrigues
Managing Partner of Zorfatec innovation consultancy
Researcher of LabEI-UFABC/CAPES
Factory of the future-Poli/USP, Brazil

Companies Strategies and Transformation for Maturity in Industry 4.0.

Eliane Message is Director at Zorfatec Technology Innovation Consultance, University and Post-Graduation Professor with all sort of corporative trainnings experience and MSc. and Technology Innovation and Cultural Organization by UFABC (Federal University of ABC). MSc. Eliane Message is Researcher at LabEI (Intrapreneurship and Innovation Laboratory) about: Cultural Innovation, Cultural of Industry 4.0, Industry 4.0, Technology Innovation and Smart Manufacturing. Researcher and speaker of themes, such as: Technology Innovation, Organizational Culture, Industry 4.0, Management of Changings, Management about Business Strategy Planning, Management of People, Purchases and Biddings, Innovational Project Management. MSc. Eliane Message is mentor of startups at "Inovativa" Program and at UFABC and also writer of international papers, books and technical materials.

8:20 – 8:40 (Wednesday)

Khalid Tantawi, PhD
Department of Career Readiness-Mechatronics
Motlow State Community College, Smyrna, TN 37167, USA

Khalid Tantawi is an assistant professor of mechatronics at the University of Tennessee at Chattanooga. Previousely, was a trainer for Siemens Technik Akademy for certifying Siemens Mechatronic Systems Certifications (level 1). I was also the elected chair of the Engineering section of the Tennessee Academy of Science, an active academic auditor, and a member of the Tennessee Textbook Advisory Panel, and the European Commission's Erasmus Mundus Association. I have more than 30 journal and conference publications, I am the first author and major contributor on the vast majority of my publications. I reviewed and judged many textbooks and scientific papers in engineering journals and international conferences. In addition to that I am an active member of IEEE, founder and advisor of Motlow's chapter of the American Chemical Society (ACS) as well as SkillsUSA Chapter. I was a member of AIAA, International Microelectronics Assembly and Packaging Society, ISE, the Humboldt Kolleg for research, SPIE UAH chapter, the Royal Society for the Conservation of Nature, and Jordan Engineers Association.

8:40 – 9:00 (Wednesday)

Dr. Samira Keivanpour
Assistant Professor
Polytechnique Montréal, Canada

The perspectives of Industry 4.0 in Operationalization of Sustainable Development

Samira is an Assistant Professor at Polytechnique Montréal. She earned her Bachelor's degree in Electrical Engineering and MBA in Operation Management from Iran. She received her Ph.D. in Industrial Engineering from Laval University. Samira was a postdoctoral fellow and professional researcher at the Department of Mechanical Engineering of Laval University during 2015-2017. She was a faculty member at Thompson Rivers University before joining Polytechnique Montréal. Her research interests include Sustainable solutions in supply chain and logistics, end of life products treatment, digital supply chain, and industry 4.0.

9:00 – 9:20 (Wednesday)

Dr. Usha Ramanathan
Professor of Sustainability and Supply Chains
Nottingham Trent University, UK

Usha Ramanathan is a Professor of Sustainability and Supply Chains in Nottingham Trent University, UK. In the past, she worked as Reader and Senior Lecturer in Universities in the UK, Oman and India. Her teaching experience spans for over 23 years. Usha is a Fellow of Higher Education Academy and Chartered member of Chartered Institute of Logistics and Transport. Usha's research interest includes supply chain collaboration for sustainability, role of collaboration in SMEs' performance, supply chain issues, value of information sharing and forecasting, e-commerce, e-tailing, social media, Business Analytics, retail customer behaviour and loyalty in the contexts of service and operations. She has published in leading journals such as International Journal of Production Economics, International Journal of Operations and Production Management, Expert Systems with Applications and Omega: The International Journal of Management Science. She is a reviewer for many leading journals.

Dr. Muthu Mathirajan
Chief Research Scientist
Indian Institute of Science (IISc), India

Muthu Mathirajan is a Chief Research Scientist at Indian Institute of Science (IISc), which is one of the premier Research Institutes in India. Dr Mathirajan's research interests are in the development of mathematical modelling and heuristic methods for the problems related to Industrial Engineering, Operations, Logistics and Supply Chain Management in Manufacturing, Service and Container Terminal Management areas. He has published over 175 research articles. He is a co-author of five books, published by Person, CRC Press, PHI, Allied Publishers, and IK Publications respectively. So far nine dissertations were awarded PhD degree under his guidance in IISc, Bangalore. He carried out five major funded research projects related to development of decision support systems, understating the R&D activities of SMEs, and the study on the impact of technological innovations of SME towards its economic growth.

9:20 – 9:40 (Wednesday)

Saul B. Henderson
Researcher, Department of Electrical and Computer Engineering
University of the District of Columbia, Washington, DC, USA

ID 500 Emerging Trends in Industry 4.0 with Innovative Case Study of Human Balance & Rehabilitation Engineering

Saul Henderson is a first-year Master's student within the Electrical Engineering department at the University of the District of Columbia (UDC). Prior to joining the Master's program in August 2019, Saul has gained over 6 years of valuable experience and soft skills in STEM research, design and informal education. Starting out at UDC as an undergraduate Electrical Engineering student in the Fall of 2012, he has gained 5 years of education experience as a student educator at the Smithsonian National Air and Space Museum (NASM). As an educator at a world-class museum, he was responsible for interacting with several hundred to thousands of visitors daily by educating them on the basic principles of aerodynamics, flight systems and space travel. Saul has also spent 2 years of his undergraduate career as a research assistant in several areas including Machine Learning, Power Systems and Mechatronics. In this capacity, he spent most of his time working under his school dean, Dr. Devdas Shetty, to enhance labs and higher-level coursework through the use of hands-on mechatronics projects and robotics. He has also worked briefly in other UDC labs including the Center for Biomedical & Rehabilitation Engineering (CBRE) and the upcoming Smart Grid lab. Saul has recently obtained his B.S in Electrical Engineering with a concentration in Computer Engineering from UDC in May 2019, where he graduated with honors. Immediately upon starting the Master's program, Saul has completed an internship in solar design where he assisted in the preliminary design and energy modeling of several dozen sites for major companies across the eastern United States. Saul is currently a graduate research assistant focusing on Wireless Communications and Cyber-Physical Systems.

Dr. Devdas Shetty, P.E.
Professor & Dean - School of Engineering and Applied Sciences (SEAS)
University of the District of Columbia, Washington, DC, USA

Dean Shetty joined University of the District of Columbia in 2012, having previously served as Dean of Engineering at Lawrence Technological University and Dean of Research at the University of Hartford. While with the University of Hartford, Dr. Shetty was first Chair of the Vernon D. Roosa Endowed Professorship. In addition, he was the Director of the Engineering Applications Center, through which he established partnerships with more than 50 Connecticut industries. During 2008 and 2009, Dr. Shetty served as Dean of the College of Engineering for Lawrence Technological University in Michigan. During that time, he initiated several new academic programs, established partnerships and contributed to curricular innovation. Prior to coming to Hartford, Dr. Shetty held academic positions at the Albert Nerkin School of Engineering at the Cooper Union for the Advancement of Science and Art in New York City. Dr. Shetty is the author of three books and more than 200 scientific articles and six patents. His books on Mechatronics and Product Design are widely used as a textbooks in many universities around the world. Dr. Shetty's research work has been cited for original contribution to the understanding of engineering surface measurement, for significant intellectual achievements in mechatronics and for contributions to product design. He is especially well-known for his contributions in establishing partnerships between the University and industries. He is the recipient of academic and research grants from organizations like National Science Foundation, Society of Manufacturing Engineers, US Army, Air force etc. Dr. Shetty had been leading research efforts in a U.S. Army research project on Unmanned Aerial Vehicles. In partnership with Albert Einstein College of Medicine in New York, he invented the patented mechatronics process for supporting patients. Dr. Shetty has chaired several international conferences and presented keynote lectures. Major honors received by Prof. Shetty include James Frances Bent award for Creativity, the Edward S. Roth National Award for Manufacturing from the Society of Manufacturing Engineers, American Society of Mechanical Engineer Faculty Award, and Society of Manufacturing Engineers Honor award. He is an elected member of the Connecticut Academy of Science and Engineering.

Session II: Industry Solutions

11:30 am – 1:00 pm (Wednesday, October 23) - MacDonald Room

Session Chair: Dr. M. Ali Ülkü, Dalhousie University, Halifax, Nova Scotia, Canada

11:30 – 11:40 (Wednesday)

Dr. Rogelio Emmanuel Jáuregui Miramontes
Centre for Management of Technology and Entrepreneurship
Chemical Engineering & Applied Chemistry
University of Toronto
Toronto, Canada

Rogelio Emmanuel Jauregui Miramontes received a PhD at the University of Toronto, a BEng and MASc degrees from the Monterrey Institute of Technology and Higher Education Mexico, and a maintenance administration diploma at the National Autonomous University of Mexico. He has 13 years of experience in industry. His research interests include simulation, optimization, reliability, maintenance scheduling, and human factors.

Dr. Pasi Petteri Luukka
Professor, School of Business
Lappeenranta University of Technology
Lappeenranta, Finland

Pasi Petteri Luukka is currently a fulltime Professor. Pasi Luukka received the M.Sc. degree from the Department of Information Technology, Lappeenranta University of Technology, and a D.Sc. degree in applied mathematics from the Department of Mathematics and Physics, Lappeenranta University of Technology. His research interests include fuzzy data analysis, classification, feature selection, and fuzzy decision making. He has authored over 50 journal papers.

Dr. Yuri A. Lawryshyn
Professor, Centre for Management of Technology and Entrepreneurship
Chemical Engineering & Applied Chemistry, University of Toronto, Toronto, Canada

Yuri A. Lawryshyn is currently a fulltime Associate Professor. Yuri Lawryshyn received BASc and MASc degrees from the University of Toronto in Mechanical Engineering, a PhD from the Department of Chemical Engineering and Applied Chemistry at the University of Toronto, an MBA from the Richard Ivey School of Business (University of Western Ontario) and a Financial Engineering Diploma from the Schulich School of Business (York University). Yuri specializes in the area of numerical modelling, including financial modelling, and real options analysis. Yuri has supervised over 60 projects related to financial modelling, trading, econometrics, customer analytics, operational risk, cyber security and FinTech.

11:40 – 12:10 (Wednesday)

Dr. M. Ali Ülkü
Professor of Supply Chain and Decision Sciences
Director of Centre for Research in Sustainable Supply Chain Analytics
Rowe School of Business, Dalhousie University
Halifax, Nova Scotia, Canada

M. Ali Ülkü is a Full Professor, and the Director of the Centre for Research in Sustainable Supply Chain Analytics (CRSSCA), in the Rowe School of Business at Dalhousie University in Halifax, NS, Canada. He received his Ph.D. in Management Sciences from the University of Waterloo, M.Sc. in Operations Research from Çukurova University, and B.Sc. in Industrial Engineering from Bilkent University. Prior to his academic career, he worked as a productivity consultant in the largest international brewery in Turkey. Dr. Ülkü's research thrusts include the theoretical modeling of sustainable supply chain and logistics systems, operations-marketing interface, and mathematical modeling of consumer behavior. He published in such journals as Annals of Operations Research, European Journal of Operational Research, International Journal of Production Economics, Journal of Business Research, Journal of Cleaner Production, and Service Science. Dr. Ülkü has taught at various universities in Canada, Turkey, and the USA. He served as the Program Chair for the 2018 Conference of the Canadian Operational Research Society.

ID 259 Incentivizing Sustainability: Price Optimization for a Closed-Loop Apparel Supply Chain
Shayla Fitzsimmons, Lisa Ma, M. Ali Ülkü, Dalhousie University, Halifax, Canada

12:10 – 12:30 (Wednesday)

Prof. Arnesh Telukdarie
Post Graduate School of Engineering Management
Faculty of Engineering and the Built Environment
University of Johannesburg, South Africa

Arnesh Telukdarie holds a Doctorate in Chemical Engineering from the Durban University of Technology, South Africa. Prof. Telukdarie is currently an associate professor in the School of Engineering Management at the University of Johannesburg and a Professional Consulting Engineer. Prof. Telukdarie has over 20 years of industrial experience, research interest includes Manufacturing and Corporate Systems.

ID 076 Implications of Industry 4.0 in Nigeria electoral system
Medoh Chuks and Arnesh Telukdarie, University of Johannesburg, South Africa

12:30 – 12:50 (Wednesday)

Richard Harpster
President, Harpco Systems, Inc., Farmington, Michigan, USA

Risk Based Thinking in FMEAs

Richard Harpster is president of Harpco Systems Inc. which he founded in 1987. Harpco Systems specializes in providing software, training and consulting for Risked Based Product Lifecycle Management (RBPLM™). Over the past 24 years Richard has helped numerous companies implement improved design and manufacturing systems on a wide variety of products from automotive components to molecular assays to detect diseases such as HIV. He is a recognized expert in the application of Failure Mode and Effects Analysis and invented several new concepts including the linking of Design FMEAs to Process FMEAs which became an automotive industry standard in 2008, eighteen years after he first introduced the concept to Ford Motor Company Climate Control Division. His latest inventions in the field of RBPLM™ include Requirements Risk Assessment™ (RRA™), Multiple Integrated Cause Analysis (MICA™) and Rapid Integrated Problem Solving (RIPS®). He has published several papers on the topic of RBPLM™. Prior to starting Harpco Systems, Richard spent 14 years at Ford Motor in a wide variety of positions including Senior Design Engineer, Superintendent of Plant Maintenance and Plant Manager. His education includes a B.S.E.E. from Penn State University, M.S.E.E from the University Of Detroit and an M.B.A. from Eastern Michigan University. Richard is a registered professional engineer in the State of Michigan.

Session III: Industry Solutions - Panel Session on Lean Six Sigma

2:30 pm – 4:00 pm (Wednesday, October 23) - MacDonald Room

Panel Chair: Steven Sibrel, Harman International

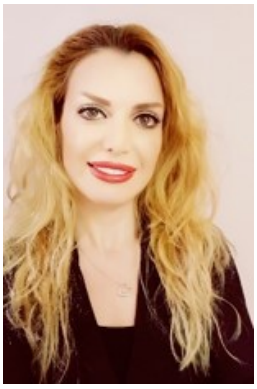
2:30 – 2:50 (Wednesday)

Steven Sibrel
Senior Supplier Quality Manager, Harman International, Novi, MI
Professional Development Chair and Past Chair - ASQ Greater Detroit

Steve Sibrel is a business process improvement trainer, coach and auditor with over 35 years of experience in the business and manufacturing world. He is currently working as Senior Supplier Quality Manager at Harman International, a manufacturer of audio and infotainment systems for consumer, professional, and automotive industries, with well-known brands such as JBL, Lexicon, Crown, Infinity, Mark Levinson, Becker and Harman-Kardon. Previously he held a number of engineering and management positions in diverse industries at Applied Materials (Semiconductor), NEC (Telecommunications) and Texas Instruments (Military). He has conducted over 200 supplier audits in North America, Europe, and Asia and is a Lead Auditor for ISO/TS16949, ISO9001, ISO13485, ISO17025, and 21CFR820. He has been the Chair for Professional Development for the ASQ Detroit section since 2008. He received the Distinguished Service Award in 2008 and the Leadership Award in 2013 from ASQ. Current ASQ Certifications held are Six Sigma Black Belt, Quality Engineer, Quality Inspector, Quality Auditor, and Manager of Quality/ Organizational Excellence. He is an adjunct facility member at Macomb Community College. Steve has a BSEE degree from Rose Hulman Institute of Technology and an MSEE degree from Southern Methodist University.

Panel Speaker I
Dr. Saso Krstovski, MBB
Lean Manufacturing Coach /Six Sigma Master Black Belt
Van Dyke Transmission Plant, Ford Motor Company, Greater Detroit, Michigan, USA

Dr. Saso Krstovski works for Ford Motor Company – Van Dyke Transmission Plant as a Lean Manufacturing Coach and Six-Sigma Master Black Belt. With over twenty years of service with Ford Motor Company, Dr. Krstovski has held a multitude of engineering assignments, which includes time working as a Test Engineer, Launch Test Engineer, and Electrical Control Engineer. During his time with Ford Motor Company, Dr. Krstovski has worked in several plant environments and skill teams such as Dearborn Tool & Die Plant, Information Technology, and has held front-line supervision roles managing hourly UAW-Ford production employees. This exposure to new work concepts within Ford has allowed Dr. Krstovski to amass a holistic approach to engineering. As such, Dr. Krstovski has gained an extensive understanding of the Six-Sigma methodologies. As a detail oriented and data-driven engineer, Dr. Krstovski is an invaluable contributor to Ford Motor Company. He is highly distinguished and skilled with problem identification and resolution to avoid time and cost expenditures. Dr. Krstovski recently joined Lawrence Technological University as an Adjunct Professor and is currently teaching in the Engineering Department. Dr. Krstovski's research interests lie in the area of System Optimization. He continues to collaborate actively with researchers at several universities. Dr. Krstovski provides guidance globally to doctoral candidates on dissertation direction. He graduated from Lawrence Technological University with a Doctorate of Engineering in Manufacturing Systems (DEMS). In addition, to his doctorate degree, Dr. Krstovski has a Masters in Electrical Computer Controlled Systems and a Bachelor's of Science in Electrical Engineering from Wayne State University. Dr. Krstovski has authored several publications and scientific articles on various engineering topics.



Panel Speaker II
Sanaz Ghazi, PhD, CSSBB, CRP
Senior Process Improvement Specialist
Medtronic Canada

Sanaz is currently working as a senior process improvement specialist with Medtronic Canada. In this position, she works with hospitals to improve care pathways and quality of patient care. She focuses on optimizing cardiac clinics, cath labs, EP labs and recovery areas by reviewing process flows and identifying bottlenecks and areas for improvement using the systematic approach of DMAIC methodology. She has a PhD in Sustainability Management. Additionally, she is an ASQ Certified Six Sigma Black Belt and received her Certified ROI Professional (CRP) certificate from the ROI institute. She has worked for over fifteen years as a quality management system lead auditor in different industries and service sectors including health care. For the past three years, Sanaz has volunteered as communication chair of ASQ-Toronto section. Additionally, she has taught courses on Quality and Statistical Control for Sheridan College's Engineering Department and Energy Efficiency in Large Buildings at Seneca College's School of Continuing Education. She is also a member of the Advisory Council (PAC) of Quality Assurance for the Manufacturing and Management program at Sheridan College.Sanaz is the author of a textbook on applied statistics. She also has a forthcoming article entitled Using Lean to Improve Wait Time Performance in Diagnostic Assessment for Lung Cancer in Healthcare Quarterly.

Session IV: Industry Solutions - 4:30 – 6:00 pm (Wednesday, October 23) - MacDonald Room

Session Chair: Dr. Sundaravalli Narayanaswami, Indian Institute of Management Ahmedabad (IIM Ahmedabad), India

4:30 – 4:50 (Wednesday)

Muhamad Fariz Failaka
Senior Process Engineer
Certified Energy Manager
PT Pupuk Kalimantan Timur, Bontang, Indonesia

Best Practices for Successful Implementation of Energy Management System in the Fertilizer Industry: A Case Study of Pupuk Kaltim Fertilizer Company in Indonesia

Muhamad Fariz Failaka is a process engineer with over than 10 years' experience in the field of fertilizer manufacturing. Since 2008, he has been working at PT Pupuk Kalimantan Timur (Pupuk Kaltim), the largest integrated ammonia-urea plant in the Southeast Asia with production of 3.43 million tons of urea, 2.74 million tons of ammonia, and 350 thousand tons of NPK per year. Most of his projects involve process design, process scheduling, and process safety. He has been the certified energy manager for Pupuk Kaltim since 2016. As energy becomes the main cost of a production cost factor in the fertilizer industry, he has led the energy champion team of Pupuk Kaltim in the

implementation of energy management system to improve energy performance by driving innovation and pushing boundaries for a greener production and more sustainable future. With the excellence teamwork of energy champion, Pupuk Kaltim has successfully achieved ISO 50001 Energy Management System (EnMS) certification and becomes the first fertilizer plant certified ISO 50001 in Southeast Asia in 2017. Following the successful implementation of EnMS, several top honor awards have been achieved by Pupuk Kaltim such as 1st winner at National Energy Efficiency Award for Large Industry category in 2018, Winner for the 2019 ASEAN Energy Awards in the category of Energy Management Industry - Large Building, and the 2019 Clean Energy Minsterial's Award of Excellence in Energy Management. Currently he is also a Doctor of Philosophy candidate in Chemical Engineering at the University of Waterloo, Canada. His research topic focuses on energy management, energy systems engineering, modeling, simulation, and optimization. He received his Master of Applied Science in Chemical Engineering from University of Waterloo, Canada. His current certifications held are process engineer, assessor of competency, and energy manager on industrial sector.

4:50 – 5:10 (Wednesday)

Ramakrishnan Ramanathan
University of Bedfordshire, Luton, United Kingdom

Ramakrishnan Ramanathan is Professor and Director of Business and Management Research Institute, in the Business School of the University of Bedfordshire, Luton, UK. In the past, he has worked and taught in a number of countries, including the UK, Finland, the Netherlands, Oman and India. He has taught basic and advanced courses on Operations Management, Production Systems Management, Supply Chain Management, Optimization Theory, Data Envelopment Analysis (DEA), Management Science, Business Statistics, Simulation, Energy and Environment, Energy and Environmental Economics, Energy and Transport Economics, and others. His research interests include operations management, Industry 4.0, Big Data, Internet of Things, supply chains, environmental sustainability, economic and policy analysis of issues in the energy, environment, transport and other infrastructure sectors. He works extensively on modelling using techniques such as optimisation, decision analysis, data envelopment analysis and the analytic hierarchy process.

ID 127 IoT sensors in Aquaculture – Barriers and Facilitators for sustainability in Brazilian Context
Ramakrishnan Ramanathan, Yanqing Duan, Tahmina Ajmal, Feng Dong and Samuel Van Ransbeeck, University of Bedfordshire, United Kingdom
Joaquim Manoel Monteiro Valverde, Silma Battezzati Valverde, Instituto Federal de Educação, Brazil

5:10 – 5:30 (Wednesday)

Dr. Soumaya Yacout
Professor, Department of Mathematics and Industrial Engineering
Polytechnique Montreal, Montreal, Quebec, Canada

Soumaya Yacout is a full Professor in the Department of Mathematics and Industrial Engineering at Polytechnique Montreal in Canada. She is the founder, President and CEO of DEXIN Inc, an enterprise dedicated in offering state of the art technologies for data-driven solutions to help companies in achieving the highest level of value added performance by keeping their physical assets in good health. She earned her doctoral degree in Operations Research at The Georges Washington University in 1985, her bachelor degree in Mechanical Engineering in 1975, and her masters in Industrial Engineering in 1979, at Cairo University. Her research interests include anomaly diagnosis and prognosis, preventive, predictive and prescriptive maintenance, autonomous maintenance and optimization of decision-making. She has publications in peer-reviewed journals including Quality Engineering, International Journal of Production Research, Computers and Industrial Engineering, IEEE Transactions, Journal of Intelligent Manufacturing, Expert Systems with Applications, and papers in international conferences, some of which received the best paper award. She is the co-editor and the co-writer of a book 'Current Themes in Engineering Technologies' on minimal repair, and the book 'Ontology Modeling in Physical Asset Integrity Management' on interoperability and exchangeability of data. She is a Registered Professional Engineer in Quebec

ID 061 Industrial Value Chain Research and Applications for Industry 4.0
Soumaya Yacout, École Polytechnique, Canada

5:30 – 5:50 (Wednesday)

Dr. Sundaravalli Narayanaswami
Chairperson, Public Systems Group
Indian Institute of Management Ahmedabad (IIM Ahmedabad), India

Professor Sundaravalli Narayanaswami is the Chairperson, Public Systems Group, IIM Ahmedabad. She earned her PhD in Industrial Engineering and Operations Research from IIT Bombay, after a Masters in Computer Science. At IIM Ahmedabad, she holds a primary affiliation with the Public Systems and Group and a secondary affiliation with Production and Quantitative Methods Area. Her teaching interests are in Transportation Studies (Urban, Intelligent Systems, Heavy and Light rails, Transport Infrastructure), Operations Research in public systems, Operations Management, Artificial Intelligence and Government Systems and Policies. Most of her research in the past and present are in transportation operations and knowledge management that involve applications of ICT and OR tools in real-life problems of large impact. Dr Sundaravalli started her career in IT services marketing and she soon moved to a production profile in an electronics equipment manufacturing industry. Her academic career began later and she has taught at various programs in Mumbai University and at Institutes under the UAE Federal education ministry in Abu Dhabi and Dubai. She has also taught in many Executive development programs while at UAE. She has authored two research based books on transportation systems and they are published by reputed international publishers. She also publishes and reviews regularly for scholarly editorials and presents her research findings among peers, both in India and abroad. Dr. Sundaravalli holds several professional affiliations. She was awarded the Fellow of the British Computer Society in 2008. While in Abu Dhabi, she had served as the Youth Professional Group representative of the entire Middle East region for the British Computer Society. She is the honoured recipient of the Distinguished Educator Award for the year 2018 from the International Society of Industrial Engineering and Operations Management (IEOM), received in Johannesburg, South Africa.

ID 322 Innovation and Productivity of Indian Railways: Industry 4.0 in Manufacturing of Rolling Stock
Sundaravalli Narayanaswami Indian Institute of Management Ahmedabad India

6:00 pm to 7:00 pm, Wednesday - MacDonald Room
Career Development Discussion with NSF Student Travel Support Awardees

Thursday (October 24, 2019)

Session V: Industry Solutions - 8:00 am – 9:30 am (Thursday) - MacDonald Room

Session Chair: Dr. Birgit Oberer, Eidgenössische Technische Hochschule, Zurich, Switzerland

8:00 – 8:30 (Thursday)

Dr. M. A. Pasha
Postdoctoral Associate
Department of Mathematics and Statistics
University of Calgary, Canada

ID 363: On Minimum Cost Non-uniform Sampling Schemes for Optimal Design of Control Charts: Application to X-bar and T2 Control Charts

Dr. Mojtaba Aghajanpoorpasha is a Postdoctoral Associate and Sessional Instructor in the Department of Mathematics and Statistics at the University of Calgary, Canada. He earned B.Sc. in Applied Mathematics and M.Sc. in Statistics from Kharazmi University of Iran, and PhD in Statistics from Allameh Tabatab'i University (ATU), Iran. He has published papers in some reputed journals like Operational Research and Communication in Statistics. His research interests include statistical process monitoring, design of experiments, reliability and maintenance, simulation, optimization and industrial statistics. Ranked 1st among PhD researchers in ATU's Faculty of Mathematical Sciences and Computer, he has extensive teaching experience in undergraduate and postgraduate courses at different universities.

Dr. Rob Deardon
Associate Professor of Biostatistics
Faculty of Veterinary Medicine and Department of Mathematics & Statistics
University of Calgary, Canada

Dr. Rob Deardon is an Associate Professor of Biostatistics with a joint position in the Faculty of Veterinary Medicine and Department of Mathematics & Statistics at the University of Calgary. Much of his recent work has been in the area of infectious disease modelling, but he is also interested in Bayesian & computational statistics, experimental design, disease surveillance methods, spatio-temporal modelling, statistical learning and statistical modelling in general. He currently has a research group of around 10 postdocs and research students. He is also currently an associate editor of the Journal of the Royal Statistical Society Series C, Coordinator of the Interdisciplinary Biostatistics Graduate Program at Calgary, and Chair of the Statistics Section of the NSERC Discovery Grant Mathematics & Statistics Evaluation Group. Previous to his post at Calgary he spent 8-years as faculty in the Department of Mathematics and Statistics at the University of Guelph, and postdoctoral positions at the Universities of Cambridge and Warwick in the UK. His PhD, in the area of agricultural experimental design, was obtained from the University of Reading in 2001.

8:30 – 9:00 (Thursday)

Dr. Biswajit Sarkar
Associate Professor, Department of Industrial and Management Engineering
Hanyang University, Ansan Gyeonggi-do, South Korea

Dr. Biswajit Sarkar is currently an Associate Professor in the Department of Industrial & Management Engineering, Hanyang University, South Korea. He has completed his Bachelor and Master in Applied Mathematics in 2002 and 2004, respectively from Jadavpur University, India. He has received his Master of Philosophy in the application of Boolean Polynomials from the Annamalai University, India in 2008, Doctor of Philosophy from the Jadavpur University, India in 2010 in Operations Research, and Post-Doctorate from the Pusan National University, South Korea (2012–2013). He has dedicated his teaching and research abilities in various universities including Hanyang University, South Korea (2014-continuing), Vidyasagar University, India (2010–2014), and Darjeeling Government College, India (2009–2010). Under his supervision, fourteen students are awarded their PhD and three students are awarded their masters. Since 2010, he has published 140 journal articles in reputed journals of Applied Mathematics and Industrial Engineering and he has published one book. He is the editorial board member of some reputed International Journals of Applied Mathematics and Industrial Engineering. Recently, he became the Guest Editor of two special issues of two SCIE indexed journals named as "Mathematics" and "Energies". He is a member of several learned societies. In 2014, his paper is selected the best research paper in an international conference in South Korea. He has presented several research papers in international conferences as an Invited Speaker and chaired several sessions in several international conference. He has received a bronze medal for his capstone achievement from Hanyang University in 2016. He is the recipient of Bharat Vikash award as a young scientist from India in 2016. He has received International award from Korean Institute of Industrial Engineers in 2017 at KAIST, Daejon, South Korea. He is the recipient of Hanyang University Academic Award as one of the most productive researchers in 2017 and 2018 consecutively.

ID 377: Maintenance of a highly perishable lifesaving product under a healthcare supply chain management

8:40 – 9:00 (Thursday)

Prof. Arnesh Telukdarie
Post Graduate School of Engineering Management
Faculty of Engineering and the Built Environment
University of Johannesburg, South Africa

ID 078 An evaluation of the fourth industrial revolution adoption in manufacturing industries: An African context
Arnesh Telukdarie University of Johannesburg South Africa

9:00 – 9:20 (Thursday)

Birgit Oberer
Researcher, Eidgenössische Technische Hochschule
Zurich, Switzerland
Evaluation Panel Group Member - IoT Open Innovation Lab of the IoT Research Center @ Northeastern University

Digital Transformation 4.0: Increasing Productivity of the Transportation Sector with Internet of Things and Digitalization

Birgit Oberer is an Associate Professor for management information systems. In the past, she worked as Associate Professor, Senior Lecturer, and Visiting Researcher in Universities in Austria, Italy, Turkey, Australia, Hong Kong and in the USA. Her teaching experience spans over 17 years. Dr. Oberer's research interest includes management information systems, innovation and technology management, Industry 4.0, Internet of Things, as well as electronic government and its applications in companies, governments, and non-profit organizations. Some of her latest publications include 'I4.0 Connectivity: Smart Factory Communications', "Flextrans 4.0: Smart Logistics for Smart Cities", "Augmented Reality 4.0: Opportunities and Challenges for Smart Factories", and "Industry 4.0 Guidelines for Developing Countries". Dr. Oberer is the co-editor of the international book series' Enterprise and Business Management' and part of the editorial team of "Advanced MIS and Digital Transformation for Increased Creativity and Innovation in Business".

09:40 – 10:20 Thursday Morning Keynote I: **Dr. Andrew K.S. Jardine**, Professor Emeritus, Industrial Engineering, Department of Mechanical and industrial Engineering, Founding Director of the Centre for Maintenance Optimization & Reliability Engineering, University of Toronto, Canada - Algonquin Rooms 1-4

10:20 - 11:00 Thursday Morning Keynote II: **Peter Merrill**, President, Quest Management Inc., Canada - Knowledge and Skills for Industry 4.0 - Algonquin Rooms 1-4

Session VI: Industry 4.0 KEYNOTE

11:30 am – 1:00 pm (Thursday, October 24) - Algonquin Rooms 1-4

Industry 4.0 and Talent Pipeline

David Pistrui, Ph.D.
Industry Liaison
Director, Graduate Recruiting
Clinical Professor of Engineering
College of Engineering & Science
University of Detroit Mercy
Detroit, Michigan, USA

Dr. Darrell Kleinke
Professor of Mechanical Engineering
Director of Professional Engineering Programs
University of Detroit Mercy
Detroit, Michigan, USA

Session VII: Industry Solutions - 2:30 pm – 4:00 pm (Thursday, October 24) - MacDonald Room

Session Chair: Dr. Walid Abdul-Kader, University of Windsor, Canada

2:30 – 2:50 (Thursday)

Tsz-Ho Kwok, Ph.D.
Assistant Professor, Department of Mechanical, Industrial and Aerospace Engineering
Concordia University, Montreal, Quebec, H3G 1M8, Canada

Design and Interaction Interface using AR for Smart Manufacturing

Dr. Tsz-Ho Kwok is an Assistant Professor in the Department of Mechanical, Industrial and Aerospace Engineering at the Concordia University, Montreal, Canada. His research interests include 3D printing, design for additive manufacturing, functional design and fabrication, cyber-manufacturing system, and mass customization. Dr. Kwok has received several awards including the Petro-Canada Young Innovator Award, a Silver Medal Award at the international exhibition of inventions of Geneva, the Chinese Youth Science and Technology Innovation Prize, and the Microsoft Research Fellowship Nomination Award. He serves as an Associate Editor in the Transactions of the Canadian Society for Mechanical Engineering (TCSME), a Guest Editor in the Journal of Computer-Aided Design and an Executive Committee Member in both American and Canadian Societies for Mechanical Engineering – ASME and CSME.

2:50 – 3:10 (Thursday)

Surajit Bag
Faculty of Engineering and Built Environment
University of Johannesburg
South Africa

Surajit Bag is currently pursuing higher research studies under University of Johannesburg in the area of Engineering Management. He has attended several National and International level conferences. His articles are in the spotlight with 381 citations, h-index 11 and i10-index 11 (Source: Google scholar). He is an Editorial board member of *International Journal of Applied Logistics, IRJ Science and Amity Journal of Operations Management*. He is also serving as the International Advisory Board Member of *International Journal of Social Ecology and Sustainable Development*.

Arnesh Telukdarie
Faculty of Engineering and Built Environment
University of Johannesburg
South Africa

Arnesh Telukdarie is an Associate Professor at the University of Johannesburg. He holds a PhD in Chemical Engineering and is a professional registered engineer. Prof Telukdarie is a consulting engineer in Industry 4.0 and digital business. Prof. Telukdarie has published widely in Cleaner technologies and Industry 4.0 in global journals.

ID 080 Impact of Big data analytics on Innovation and Learning Performance
Arnesh Telukdarie University of Johannesburg South Africa

3:10 – 3:30 (Thursday)

Ibrahim Oluwole Raji
School of Industrial Engineering, LIUC - Università Carlo Cattaneo, Castellanza 21053 (VA) Italy

Ibrahim Raji is currently enrolled in a Ph.D. program at LIUC - Università Carlo Cattaneo, Italy. He earned his Bachelor of Science (B.Sc.) and Master of Science (M.Sc.) degrees in Industrial and Production Engineering department of Nigeria's Premier University - University of Ibadan. He also has an executive master's certification in Project Management from CUPE limited, United Kingdom. He has worked both in the industry (manufacturing sector specifically) and academic institutions as a lecturer in University of Ibadan, Nigeria and Kampala International University, Uganda. His research interests majorly include lean and agile supply chain strategies and specifically exploring how Industry 4.0 technologies act as enablers of lean and agile supply chain strategies; performance and operations management (viz-a-viz productivity modelling and assessment); and some element of discrete event simulation. He has publications to his name in academic journals and conference proceedings.

Tommaso Rossi
School of Industrial Engineering, LIUC - Università Carlo Cattaneo, Castellanza 21053 (VA) Italy

Tommaso Rossi is an Associate Professor of Mechanical Industrial Plants at LIUC - Università Carlo Cattaneo. He is the Director of the Executive Program Leandustry 4.0 of LIUC Business School and the Lean Club of LIUC as well as Scientific Manager of i-FAB. He holds courses in operations at LIUC and Politecnico di Milano and is co-responsible for the lean and Industry 4.0 contents within the Executive Master "Global Supply Chain Management" at the IML-International Institute for the Management of Logistics (École Polytechnique Fédérale de Lausanne, College of Management of Technology). His main themes of interest and research, on which he collaborates with MIT, Fraunhofer Institute and Dalle Molle Institute for Artificial Intelligence, are lean manufacturing, design of production systems, modelling and simulation of complex systems, data analytics. On these, he has been the coordinator of numerous projects commissioned by LIUC from leading national and international companies and author of over 30 publications in international peer-reviewed journals.

ID 077 Exploring Industry 4.0 technologies as drivers of Lean and Agile Supply Chain Strategies
Ibrahim Raji and Tommaso Rossi, LIUC - Università Carlo Cattaneo, Italy

3:30 – 3:50 (Thursday)

Sadaf Zahoor
Department of Mechanical, Automation and Materials Engineering
University of Windsor
Windsor, Canada

Sadaf Zahoor is an Assistant Professor in the Department of Industrial and Manufacturing Engineering Lahore Pakistan and a Post-Doctoral Fellow in the Department of Mechanical, Automotive, and Materials Engineering, Faculty of Engineering University of Windsor, Windsor, Ontario, Canada. Her research interests include sustainable manufacturing, reliability, scheduling, and lean.

Dr. Walid Abdul-Kader
Professor
Department of Mechanical, Automation and Materials Engineering
University of Windsor
Windsor, Canada

Walid Abdul Kader is a professor of Industrial Engineering in the Faculty of Engineering at the University of Windsor, Canada. He holds a PhD degree in Mechanical Engineering from Université Laval, Canada. He completed his bachelor's degree from Université du Québec à Trois-Rivières, Canada, and master's degree from École Polytechnique de Montréal, Canada. His research interests relate to performance evaluation of reverse logistics and re/manufacturing systems prone to accidental failure. His publications have appeared in leading national and international journals and conferences proceedings.

Mohammad Zain
Department of Industrial and Manufacturing Engineering
University of Engineering and Technology
Lahore, Pakistan

ID 184 The Prospect of Smart-Remanufacturing in Automotive SMEs: A Case Study
Sadaf Zahoor and Walid Abdul-Kader, Department of Mechanical, Automation and Materials Engineering, University of Windsor, Windsor, Canada
Mohammad Zain, Department of Industrial and Manufacturing Engineering, University of Engineering and Technology, Lahore, Pakistan

3:50 - 4:10 (Thursday)

Dr. Salah Sharieh
Sr. Director, API Delivery and Operations
RBC
Toronto, Canada

Session VIII: Industry Solutions - 4:30 pm – 6:00 pm (Thursday, October 24) - MacDonald Room

Session Chair: Walid Abdul-Kader, University of Windsor, Canada

4:30 pm – 4:50 **pm (**Thursday**)**

Jesusetemi Oluwafemi
Department of Quality and Operations Management
University of Johannesburg, DFC Campus, South Africa

Jesusetemi Funmi Oluwafemi is a second year PhD student in the Department of Quality and Operations Management at University of Johannesburg, South Africa. Her doctoral research investigates the relationship between Industry 4.0 and agricultural sector productivity in Nigeria. She takes a multidisciplinary approach that encompasses the fields of human capital development, economic growth, TQM, Industry 4.0. She is a member of the Institute of strategic management Nigeria. She holds a master's degree in Economics from Afe Babalola University Ado Ekiti, Nigeria, in which her research study investigated the impact of human capital development on economic growth of Nigeria. She co-authored the article "The impact of work environment in concurrence to productivity in higher institutions, the role of change readiness in determining the existing relationship between TQM practices and employee performance". Jesusetemi worked as a financial officer at the Kwara State Ministry of finances, Kwara State, Nigeria, while also running her Engineering firm in Nigeria.

Dr. Pule Kholopane
Senior Lecturer and Head of the Department
Department of Quality and Operations Management
University of Johannesburg, DFC Campus, South Africa

Dr. Pule Kholopane is currently a Senior Lecturer and Head of Department in the Department of Quality and Operations Management, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa. He has both industrial and academic experience for more than twenty years. He has got a Doctorate of Engineering degree from the University of Johannesburg where he has been supervising masters and PhD students during the current decade. He has published several journal and conference research papers. His research areas include project management, process optimizations, manufacturing processes, supply chain management, sustainability, production planning, energy efficiency, waste reduction, product development and marketing, product quality related issues, cost analysis, etc.

Ifetayo Oluwafemi
Postgraduate School of Engineering Management
University of Johannesburg, South Africa

Esther T. Akinlabi
Full Professor, Department of Mechanical Engineering Science
University of Johannesburg, APK Campus, 2006, South Africa

Professor Esther Akinlabi is a Full Professor at the Department of Mechanical Engineering Science, Faculty of Engineering and the Built Environment, University of Johannesburg. She has had the privilege to serve as a Head of Department of the Department of Mechanical Engineering Science and as the Vice Dean for Teaching and Learning at the University of Johannesburg. 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 and has demonstrated excellence in all fields of endeavors. 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 member of the prestigious South African Young Academy of Science and registered with the Engineering Council of South Africa. Prof Akinlabi has filed two patents, edited one book, published four books and authored/co-authored over 300 peer reviewed publications.

ID 317 The Nexus between Finance and Agricultural Productivity in Nigerian's agricultural sector
Jesusetemi Oluwafemi, Pule Kholopane, Dept. of Quality and Operations Management, University of Johannesburg, DFC Campus, South Africa
Ifetayo Oluwafemi, Postgraduate School of Engineering Management, University of Johannesburg, RSA
Esther T. Akinlabi, Department of Mechanical Engineering Science, University of Johannesburg, RSA, South Africa

4:50 pm – 5:10 pm (Thursday)

Maleho M
Post Graduate School of Engineering Management
University of Johannesburg, Auckland Park, 2092, South Africa

Maleho M is a master's degree student at the postgraduate school of Engineering management, Johannesburg, South Africa.

Telukdarie Arnesh
Post Graduate School of Engineering Management
University of Johannesburg, Auckland Park, 2092, South Africa

ID 073 Developing a framework for evaluation of a digital maintenance management system

Maleho M, Telukdarie Arnesh, Post Graduate School of Engineering Management, University of Johannesburg, Auckland Park, 2092, South Africa

5:10 pm – 5:30 pm (Thursday)

Dr. Munir Majdalawieh
Associate Professor and Head of the information systems and technology management department
College of Technological Innovation
Provost Advisor on continuing Education and Outreach
Zayed University, Dubai, UAE

Munir Majdalawieh is the head of the information systems and technology management department at the College of Technological Innovation and the Provost Advisor on continuing Education and Outreach, Zayed University, Dubai, UAE. Prior to joining ZU in 2012, he worked for the American University of Sharjah (AUS) in UAE for six years and worked for Booz Allen Hamilton, Hewlett Packard, Compaq Computer Corporation, and Digital Equipment Corporation in the USA for more than 22 years. He has published many peer-reviewed papers in international journals and conference proceedings covering topics like enterprise business processes, internal auditing and control, IT security and privacy, MIS, risk management, green logistics and SCM, corporate and IT governance and strategic changes in IT/IS technologies and management. He obtained his Ph.D. in IT and his EMBA from George Mason University, Fairfax, Virginia and his MSc. in Computer Science and Applied Math from Northeastern University, Boston, Massachusetts. He has been teaching several courses in information systems and technology management including SCM & logistics, ERP, MIS, project management, systems analysis and design, business process management, IT strategy and governance, IT audit and control and green computing. He is member of IEOM, INFORMS, ISACA, IIA, and IEEE.

ID 122 Advancing Digital Transformation: Integrated Digital Transformation Framework for a Successful Deployment
Munir Majdalawieh, Information Systems and Technology Management Department, Zayed University, Dubai, UAE

5:30 pm – 5:50 pm (Thursday)

Hendrik Frölian, M.Sc. RWTH, M.Sc. Tsinghua
CPO and Co-founder of Solutions Ariv
Montreal, Canada

Possibilities for SMEs to profit from a scalable and interoperable Industry 4.0 platform

Hendrik is the CPO (Chief Product Officer) and Co-founder of Solutions Ariv in Montreal, Canada. He received his engineering and business and administration education in Germany and China. Hendrik holds a master's degree in mechanical engineering and business and administration from RWTH Aachen University in Germany and a master's degree in power engineering and engineering thermophysics from Tsinghua University in China. Hendrik's research interests include production optimization, Industry 4.0 applications, and information management.

Friday (October 25, 2019)

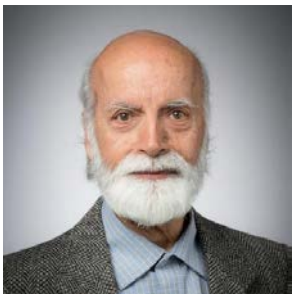
Industry Solutions IX: Industry 4.0/Automation / Robotics

8:00 am – 9:30 am (Friday) - MacDonald Room

Session Chair: Dr. Ishwar Singh, Consultant at McMaster/Mohawk B.Tech, Toronto, Canada

8:00 – 8:20 (Friday)

Dr. Dan Centea
Associate Professor
Associate Director, Undergraduate
W Booth School of Engineering Practice and Technology
Associate Member, Department of Mechanical Engineering
McMaster University
Hamilton, Ontario, Canada



Dr. Ishwar Singh
Consultant at McMaster/Mohawk B.Tech
Toronto, Canada

Industry 4.0 Implementation at McMaster University

Ishwar Singh is an Adjunct Professor in the School of Engineering Practice & Technology (SEPT) at McMaster University since 2011. Prior to that he was the founding Associate Director of the four-year BTech programs, a joint venture between McMaster University and Mohawk College, and the Chair of the process automation program. He coordinated the curriculum design development and implementation of the process automation, automotive and vehicle technology, and biotechnology programs in addition to his contribution for the establishment of the energy engineering technology degree completion BTech program. More recently he has been involved in the establishment of the SEPT Learning Factory for Industry 4.0 Education, Training & Applied Research.

8:20 – 8:40 (Friday)

Aamirah Mohammed Ashraf
Department of Mechanical, Automotive and Materials Engineering
University of Windsor, Canada

Aamirah Mohammed Ashraf is an MASc. candidate at the University of Windsor with a research interest in Intelligent Supply Chains, Reverse Logistics and Sustainable Development. Her master's thesis addresses the challenges of maximizing profitability in reprocessing of end-of-use electronics.

Dr. Walid Abdul Kader
Department of Mechanical, Automotive and Materials Engineering
University of Windsor, Canada

ID 258 Integrating Blockchain in Nuclear Fuel Supply Chains for Transparency of Hazardous Materials Flow
Aamirah Ashraf and Walid Abdul Kader, University of Windsor, Canada

8:40 – 9:00 (Friday)

Tom Murad, Ph.D., P.Eng. F.E.C., SM.IEEE
Country Lead - Engineering & Academics
Siemens Canada Limited

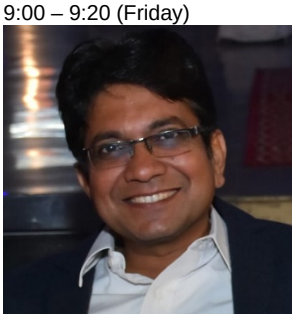
Dr. Tom Murad, Country Lead of Engineering & Academics at Siemens Canada, a member of Engineering Order of Honor - Professional Engineers Ontario "PEO", is a respected Technology leader, thinker, an award-winning Educator and distinguished speaker on the topics of Engineering, Technology and Technical talents / skills development and education. Joined Siemens Canada in 2010, he is the founder of the Siemens Canada Engineering and Technology Academy "SCETA", that he established and directed since October 2014. Before his current role, he was the Head of the "Expert House" and Engineering Director for Siemens Canada's Industry sector since 2010. Prior to joining Siemens, Tom was the Senior VP and COO of AZZ- Blenkhorn & Sawle. Tom has an extensive career in Professional Engineering and Executive Management of Innovative Technical Operations including Academic and R&D work in Electrical power, Industrial Controls and Automation. He is also serving as a member of various advisory Boards of Directors in the Industry and Academia. Dr. Murad holds a Bachelor of Engineering (Electrical & Electronics), and a Doctorate (Ph.D.) in Power Electronics and Industrial Controls from Loughborough University of Technology in the UK, with a Leadership Program Certificate from Schulich Business School, York University in Ontario, Canada.

Dr. Murad is :

- Member of Board of Directors - OSPE
- Member of PEO Engineering Order of Honor
- Fellow of Engineers Canada "F.E.C".
- Senior Member of IEEE.
- Licensed P.Eng.; (PEO & OSPE) in Ontario; APEGA in Alberta, & NAPEG in the N.W. Territories.

- Member of PEO Licensing "Engineering Experience Review"- ERC Committee since 2003.
- Member of Advisory Board - Ryerson University - Engineering Faculty.
- Member of Ontario Francophone Workforce Development Council (FWDC).
- Member of Board of Directors - IEEE Canada & Chair of Executive committee -IEEE Toronto Section (2016-2017).
- Member of Board of Directors - Canadian - German Centre for Innovation and Research (2015-2018).

9:00 – 9:20 (Friday)



Dr. Ajay Jha
Operations Management Faculty, School of Business
University of Petroleum & Energy Studies (UPES), Dehradun, Uttarakhand, India

Dr. Ajay Jha is an Operations Management Faculty at School of Business, University of Petroleum & Energy Studies (UPES), Dehradun, Uttarakhand, India. The school's MBA program (Logistics and Supply Chain) is accredited by IACBE. Dr. Jha takes specialized subjects like Technology Management, Operations Management, Business Process Reengineering and Supply Chain Management at this institute. He is a doctorate in Strategy implementation (specifically technological innovation management and supply chain management) from Indian Institute of Technology, Kanpur India. His other educational qualifications include B. Tech. in Mechanical Engineering from HBTI, Kanpur and M. Tech. in industrial and Management Engineering from IIT Kanpur. He has got more than 11 years' experience of teaching various management and engineering subjects, like Project Management, Production and Operations Management, Optimization Methods and Applied Mechanics. Dr, Jha has also rich industrial experience of almost 10 years spanning various functional domains like Marketing, Project Management, Safety & Quality Audits, and Lean implementations. His area of interest includes Operations Management, Supply Chain Management and Technology Management.

Session X: Industry 4.0 - 11:30 am – 1:00 pm (Friday, October 25) - MacDonald Room

Session Chair: Sandro Breval Santiago, Faculty of Social Studies, Federal University of Amazonas, Amazonas, Brazil

11:30 – 11:50 (Friday)

Dr. Loubna BENABBOU
Department of Management Sciences
UQAR, Levis Campus, Québec, Canada

Towards a Data-Driven Continuous Improvement Approach to Achieve Operational Excellence

Dr. Loubna BENABBOU is a Professor of Management Sciences at Université du Québec à Rimouski (UQAR) at Lèvis campus. Her research work lie in the development and application of machine/deep learning and decision sciences to transform data for making better decisions and improving operational processes. Dr Benabbou has been supervising several undergraduate and graduate students in projects for different Industries related to the areas of machine learning, decision sciences and operations management. Her research related to these fields has been published in international scientific journals and conferences' proceedings. Dr Benabbou was an associate professor of Industrial Engineering at EMI School of Engineering. She was also a trader at Casablanca stock exchange and financial analyst and risk manager at the Caisse Marocaine des retraites the Moroccan largest intuitional fund manager. Dr Benabbou is an industrial engineer from EMI School of Engineering, she earned an MBA and a PhD in machine learning and decision sciences from Laval University.

11:50 – 12:10 (Friday)

Dr. Ramavarapu S. Sreenivas
Department of Industrial and Enterprise Systems Engineering
University of Illinois at Urbana-Champaign
Urbana, IL 61801, USA

Ramavarapu Sreenivas received the B.Tech degree in Electrical Engineering from the Indian Institute of Technology, Madras, India in 1985, and the M.S. and Ph.D. degrees in Electrical and Computer Engineering from Carnegie Mellon University, Pittsburgh, PA in 1987 and 1990, respectively. He was a Postdoctoral Fellow in Decision and Control at the Division of Applied Sciences, Harvard University, Cambridge, MA, before he joined the University of Illinois at Urbana-Champaign in 1992, where he is an Associate Professor of Industrial and Enterprise Systems Engineering.

ID 203 An Affordable and Portable Technology for Real-Time Scheduling of Appliances in Smart Homes
Ramavarapu Sreenivas University of Illinois at Urbana-Champaign United States

12:10 – 12:30 (Friday)

Jesusetemi Oluwafemi[1], Pule Kholopane[2] and Ifetayo Oluwafemi[3]
[1,2]Department of Quality and Operations Management, University of Johannesburg, RSA
DFC Campus, South Africa.
[3]Postgraduate School of Engineering Management, University of Johannesburg, RSA

Esther T. Akinlabi
Department of Mechanical Engineering Science,
University of Johannesburg, APK Campus, 2006, South Africa

ID 320 An Application of Industry 4.0 in Agriculture in Nigeria
Jesusetemi Oluwafemi, Pule Kholopane, Ifetayo Oluwafemi, Department of Quality and Operations Management, University of Johannesburg, RSA, DFC Campus, South Africa, Postgraduate School of Engineering Management, University of Johannesburg, RSA
Esther T. Akinlabi, Department of Mechanical Engineering Science, University of Johannesburg, RSA, APK Campus, 2006, South Africa

12:30 – 12:50 (Friday)

Americo Azevedo
Faculty of Engineering
University of Porto – INESC TEC - CESE
Porto, Portugal

Américo Azevedo Associate Professor at University of Porto and Research Project Manager at Inesc Porto (one of the main research and technology transfer institutes in Portugal). I have been involved in several R&D project contract with European Union and Portuguese public institutions and enterprises and also, I have been reviewer and evaluator of several international R&D Industrial projects and member of several scientific programmes committees. undergraduate studies at the Faculty of Engineering of University of Porto (FEUP) in Electrical and Computers Engineering, graduating in 1988. I received a PhD in the area of collaborative planning systems in the context of networking enterprises from University of Porto in 2000. Author of many articles in international journals and technical publications and also I have been active in preparing and participating in R&D projects involving industrial companies as well as I have been supervising several PhD and M.Sc research thesis. Areas of research interest include topics in the domain of Business Process Engineering, Inter-firms Networks (Collaborative Operations Management, Alignment and Collaborative Business Process Management), Digital Manufacturing and industrial and Operations Management.

Sandro Breval Santiago
Faculty of Social Studies
Federal University of Amazonas, Amazonas, Brazil

Sandro Breval Santiago. PhD in Production Engineering from the Federal University of Santa Catarina (UFSC), Master's Degree in Production Engineering from the University of Amazonas, Specialization in Business Financial Management and graduation from the Federal University of Amazonas . Experience in direction and management in the industrial segment (Metal Manufacturing, Eletronics parts), information technology (ERP Development) and logistics (barges transport).

ID 059 Design of an Assessment Industry 4.0 Maturity Model: an application to manufacturing company
Americo Azevedo, Faculty of Engineering, University of Porto – INESC TEC – CESE, Porto, Portugal
Sandro Breval Santiago, Faculty of Social Studies, Federal University of Amazonas, Amazonas, Brazil

Session XI: Industry Solutions - 2:30 pm – 4:00 pm (Friday, October 25) - MacDonald Room

Session Chair: Sardar Asif Khan, FCA Fiat Chrysler Automobiles, Detroit, Michigan

2:30 pm – 2:50 pm (Friday)

Tom Seubert
MES Project Manager
American Axle Manufacturing Account
Larsen & Toubro Infotech Ltd.
Southfield Information Technology Center
Southfield, Michigan, USA

Manufacturing Execution System (MES) Current Understanding & Success Factors

2:50 pm – 3:10 pm (Friday)

Dr. Anjali Awasthi
Associate Professor, Concordia Institute for Information Systems Engineering
Faculty of Engineering and Computer Science, Concordia University, Montreal, Canada

Dr. Anjali Awasthi is Associate Professor at Concordia Institute for Information Systems Engineering (CIISE), in Concordia University, Montreal. She received a PhD in industrial engineering and automation from INRIA Rocquencourt and University of Metz, France. Prior to Concordia, Dr. Awasthi worked at University of British Columbia and University of Laval where she was involved in several projects on industrial applications of operations research. In France, she was involved in many European projects aimed at improving urban mobility in cities, city logistics and on cybernetic transportation systems. Her areas of research are modeling and simulation, data mining, Information Technology and decision making, sustainable logistics planning, quality assurance in supply chain management and sustainable supply chain management. She is the author of several journal and conference papers on these topics.

3:10 – 3:30 (Friday)

Sardar Asif Khan, P. Eng. , PMP
Manager World Class Logistics
FCA Fiat Chrysler Automobiles, Detroit, Michigan

Asif Khan brings over 28 years of engineering and management experience from industry. With strong Lean / World Class Manufacturing experiences, he has helped companies transform from traditional methodologies to Lean Manufacturing. In his current role as WCL Knowledge Development Manager, Asif is responsible for the development and implementation of WCL knowledge in MOPAR NAFTA, a methodology that focuses on reducing waste, increasing productivity, and improving quality and safety in a systematic and organized approach. Asif's solid experience comes with a strong belief in creating a culture that respects and promotes people's ingenuity and creativity to create trust and bond, which then becomes a potent recipe for collaboration, problem-solving and value-creation. Asif is an official WCM auditor.

Previously, Asif has held positions with increased responsibility from to including successful launch of launch a new program (V6 pentastar engine) at one of FCA engine manufacturing plant in Michigan, USA. Most recently Asif was appointed to create the WCM organization from scratch and lead activities to implement WCM processes, while achieving financial and audit score results to support the FCA's WCM route map and targets. Asif led transformation of plant from scratch to achieve Silver Award for most performing engine plant in NAFTA within three years. Asif was honored with Leader of Leaders (highest FCA leadership recognition) award in recognition of leading change, overcoming obstacles and inspiring people to participate in meaningful ways. Asif Khan has helped numerous companies in translating the WCM methodology into actionable and practical strategies for implementation and integration into factory ways of working. Asif has also worked as a process improvement consultant with the DTE corporate office to stream line their processes.

Asif earned a Bachelor of Science degree in Electrical Engineering (1990), Master of Science degree in Manufacturing Engineering (2001) and Master of Business Administration degree (2007) from the USA. Currently he is pursuing a Doctorate of Engineering in Manufacturing Systems at Lawrence Technological University, Michigan (expected completion 2020). Concurrently, he is an Adjunct Lecturer at the University of Windsor, where he teaches a graduate engineering course on Process Improvement/ Six Sigma methodologies. Asif sits on numerous boards and committees, and loves volunteering for giving back to the engineering profession and community.

3:30 – 3:50 (Friday)

Abdellah MENOU
Director
Mohammed VI International Academy of Civil Aviation (AIAC)
Casablanca Prefecture, Morocco

Abdellah MENOU heads up the Mohammed VI International Academy of Civil Aviation (AIAC) since 2012 at National Airports Authority of Morocco (ONDA). He has a Civil Aviation Management Diploma from Singapore Aviation Academy. Before joining ONDA, Abdellah Menou was an Associate Professor at the University Of Orleans, France. He has HDR (High Qualification Research) in Transportation and Civil Engineering from University of Toulouse III, and Ph.D. in Applied Sciences (Civil and Mechanical Engineering), from the University of Pau (UPPA), France.

More than 20 Phds has been supervised in various scientific and management fields which also results in over 60 papers published in international journals.

3:50 – 4:10 (Friday)

Arifusalam Shaikh, PhD, CSCP
CEO & Co-Founder
Creatros Technologies Inc.
Entrepreneur, Educator and a Researcher
St. John's, Newfoundland and Labrador, Canada

Session XII: Industry Solutions - 4:30 pm – 6:00 pm (Friday, October 25) - MacDonald Room

Panel Session on Industry 4.0 (Status and Talent Pipeline)

Panel Chair

David Pistrui, Ph.D.
Industry Liaison
Director, Graduate Recruiting
Clinical Professor of Engineering
College of Engineering & Science
University of Detroit Mercy
Detroit, Michigan, USA

Panel Speaker I

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 Dept. of Mechanical Engineering
Lawrence Technological University, Southfield, Michigan, MI 48075, USA

Ahad Ali is an Associate Professor and Director of Industrial Engineering Program and Director of Smart Manufacturing and Lean Systems, A. Leon Linton Department of Mechanical 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

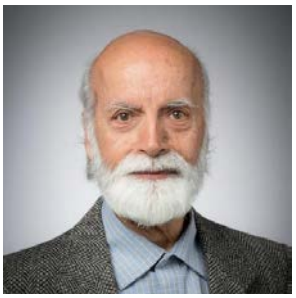
Nanyang Technological University, Singapore and Ph.D. in Industrial Engineering from University of Wisconsin-Milwaukee. Dr. Ali was Assistant Professor in Industrial Engineering at the University of Puerto Rico - Mayaguez, Visiting Assistant Professor in Mechanical, Industrial and Manufacturing Engineering at the University of Toledo, and Lecturer in Mechanical Engineering at the Bangladesh Institute of Technology, Khulna. He received an Outstand-ing 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 done research projects with Chrysler, Ford, DTE 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 has served 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 and Bangkok. Dr. Ali has visited 20 countries for professional events. He is a member of IEOM, INFORMS, SME and IEEE.

Panel Speaker II

Tom Murad, Ph.D., P.Eng. F.E.C., SM.IEEE
Country Lead - Engineering & Academics
Siemens Canada Limited

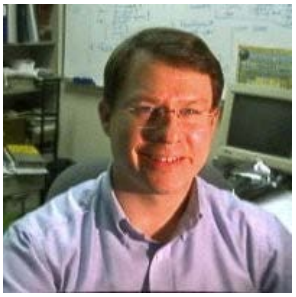
Dr. Tom Murad, Country Lead of Engineering & Academics at Siemens Canada, a member of Engineering Order of Honor - Professional Engineers Ontario “PEO", is a respected Technology leader, thinker, an award-winning Educator and distinguished speaker on the topics of Engineering, Technology and Technical talents / skills development and education. Joined Siemens Canada in 2010, he is the founder of the Siemens Canada Engineering and Technology Academy "SCETA", that he established and directed since October 2014. Before his current role, he was the Head of the “Expert House” and Engineering Director for Siemens Canada’s Industry sector since 2010. Prior to joining Siemens, Tom was the Senior VP and COO of AZZ- Blenkhorn & Sawle. Tom has an extensive career in Professional Engineering and Executive Management of Innovative Technical Operations including Academic and R&D work in Electrical power, Industrial Controls and Automation. He is also serving as a member of various advisory Boards of Directors in the Industry and Academia. Dr. Murad holds a Bachelor of Engineering (Electrical & Electronics), and a Doctorate (Ph.D.) in Power Electronics and Industrial Controls from Loughborough University of Technology in the UK, with a Leadership Program Certificate from Schulich Business School, York University in Ontario, Canada.

Panel Speaker III



Dr. Ishwar Singh
Consultant at McMaster/Mohawk B.Tech
Toronto, Canada

Ishwar Singh is an Adjunct Professor in the School of Engineering Practice & Technology (SEPT) at McMaster University since 2011. Prior to that he was the founding Associate Director of the four-year BTech programs, a joint venture between McMaster University and Mohawk College, and the Chair of the process automation program. He coordinated the curriculum design development and implementation of the process automation, automotive and vehicle technology, and biotechnology programs in addition to his contribution for the establishment of the energy engineering technology degree completion BTech program. More recently he has been involved in the establishment of the SEPT Learning Factory for Industry 4.0 Education, Training & Applied Research.



Panel Speaker IV

Tom Gaasenbeek
President & CEO, Nexas Networks Inc.
Hamilton, Ontario, Canada

Thomas (Tom) Gaasenbeek (1998 BA, Western University) is the President and CEO of Nexas Networks Inc., a Hamilton Ontario based high-tech company that specializes in leading-edge manufacturing connectivity solutions for the shop floor. Since he co-founded Memex Electronics Inc. in 1992 (and several other public and private ventures), Tom has been the visionary leader, and CTO dedicated to “internetworking” machine tools on the factory floor. Under Tom’s leadership, his engineering teams successfully developed technologies that open, closed CNC control architectures, and was performing IoT already when the term was coined in 1998. As a member of the Open Modular Architecture Controls Group (OMAC), Tom led the Global HMI development team from his public company e-Manufacturing Networks, which created the first machine tool XML schema for HMI, OEE and Lean Manufacturing applications in 1999 that is today called MTConnect. Tom has filed patents in the area of Energy Management and Dynamic Computer Assisted Machining (DCAM) and authored numerous articles in trade journals around the world in Industry 4.0 and IIoT. Further, Tom has been a speaker about the adoption of AI and AR on the factory floor as well. In 2018, Mr. Gaasenbeek was named to the Top 50 in North America by Smart Industry Magazine for his co-founding of the widely adopted now ANSI standard MTConnect. Tom also authors a blog called “CIM Today” that promotes Computer Integrated Manufacturing, and it has had over 48,000 readers since it started. Also since 2013, Tom has been the Executive Director of the Advanced Technology Think Tank founded in 1962.

Panel Speaker V

Dr. Darrell Kleinke
Professor of Mechanical Engineering and
Director of Professional Engineering Programs
University of Detroit Mercy
Detroit, Michigan, USA

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Dr. Raja Kothandaraman, Alpha College of Engineering, Chennai, India
Dr. Brigitte Jaumard, Concordia University, Canada
Dr. Rashmi Jha, Gitarattan International Business School (GIBS), Affiliated to Guru Gobind Singh Indraprastha University, New Delhi, India
Dr. Shahrul B. Kamaruddin, Universiti Sains Malaysia
Dr. Francis Leung, City University of Hong Kong, China
Dr. Boudouda Malik, University of Champagne-Ardenne, France
Dr. Ilias Mamat, Quest International University Perak, Ipoh, Malaysia
Dr. Fulufhelo Masithulela, University of South Africa
Dr. Abderrahmane Mellak, University of Boumerdes, Algeria
Dr. Yuan Xue Ming, SIMTech: Singapore Institute of Manufacturing Technology, Singapore
Dr. Ruchi Mishra, Institute of Management, Nirma Univ., Ahmedabad, India
Dr. Vladimir Modrak, TUKE, Slovakia
Dr. Norhamidi Muhamad, UKM, Malaysia
Dr. Michael Mutingi, University of Botswana, Botswana
Dr. Arun N. Nambiar, California State University – Fresno, USA
Dr. Cecilia Nembou, Divine Word University, Papua New Guinea
Dr. Sawat Pararach, Thammasat University, Thailand
Dr. Eui H. Park, North Carolina A&T State University, USA
Dr. Md. Mizanur Rahman, Universiti Malaysia Sabah (UMS), Kota Kinabalu, Sabah, Malaysia
Dr. T. Ramayah, School of Management, Universiti Sains Malaysia
Dr. Raja Zuraidah Raja Mohd Rasi, Universiti Tun Hussein Onn Malaysia
Dr. Bhuvenesh Rajamony, University Malaysia Perlis (UniMAP), Malaysia
Dr. Mohd Abdur Rashid, University Malaysia Perlis (UniMAP), Malaysia
Dr. Syed Asif Raza, Qatar University, Qatar
Dr. Nubia Milena Velasco Rodriguez, Universidad de Los Andes, Colombia
Dr. P. Sanjeevikumar, Dublin Institute of Technology, Ireland
Dr. Mahmood Shafiee, Cranfield University, Bedfordshire, United Kingdom
Dr. Ahm Shamsuzzoha, University of Vaasa, Finland
Dr. Abdussalam Shibani, Coventry University, UK
Dr. Sarbjit Singh, National Institute of Technology, Jalandhar, Punjab, India
Dr. Shahryar Sorooshian, University of Gothenburg, Sweden
Dr. Jayakanth Srinivasan, MIT Sloan School of Management
Dr. Gopalan Srinivasan, University of New Brunswick, Canada
Dr. Zuraidah Sulaiman, Universiti Teknologi Malaysia
Dr. Balan Sundarakani, University of Wollongong in Dubai, UAE
Laurent Tchommo, Operations Management, Department of CIS & BSAN, College of Business, James Madison University, VA, USA
Dr. Murat Caner Testik, Hacettepe University, Ankara, Turkey
Dr. Theodore B. Trafalis, University of Oklahoma, USA
Dr. Vladimir I. Tsurkov, Russian Academy of Sciences, Moscow, Russia
Dr. Hui-Ming Wee, Chung Yuan Christian University, Taiwan
Dr. Yong Yin, Yamagata University, Japan
Dr. Norzaidahwati Zaidin, Universiti Teknologi Malaysia, Johor, Malaysia
Dr. Suhaiza Hanim Zailani,University Malaya, Malaysia
Dr. Linda L. Zhang, IESEG School of Management, Lille-Paris, France
Dr. Ali Mostafaeipour, Associate Professor, Industrial Engineering Department, Yazd University, Yazd, Iran

Submissions Received from Countries and Territories

Algeria
Australia
Bangladesh
Botswana
Brazil
Canada
Cape Verde
Colombia
Egypt
Finland
France
Germany
India
Indonesia
Iran
Iraq
Ireland
Italy
Jordan
Kuwait
Malaysia
Mauritius
Mexico
Morocco
Nigeria
Oman
Pakistan
Papua New Guinea
Philippines
Portugal
Qatar
Saudi Arabia
South Africa
South Korea
Spain
Sri Lanka
Sudan
Taiwan
Thailand
Turkey
United Arab Emirates
United Kingdom
United States
Yemen
Zimbabwe

Parallel Sessions

Wednesday, October 23, 2019

	MacDonald Room	Mackenzie Room	Algonquin 1	Algonquin 2	Algonquin 3	Algonquin 4
8:00	**Industry 4.0 / Industry Solutions I**	**Global Engineering Education I**	**Logistics**	**Innovation**	**Supply Chain Management**	**Project Management**
9:30	***Welcome Address:***					
9:40	***Opening Keynote I:* Dr. Jatin Nathwani**, Professor and Ontario Research Chair in Public Policy for Sustainable Energy, Executive Director, Waterloo Institute for Sustainable Energy (WISE), Faculty of Engineering and Faculty of Environment, University of Waterloo, Canada - *Presentation Title: Science and Technology for Human Betterment*					
10:20	***Opening Keynote II:* Shalabh Bakshi**, Director, Digital Enterprise and MindSphere, Digital Factory Division, Siemens Canada					
11:00	Networking Break					
11:30	**Industry 4.0 / Industry Solutions II**	***Keynote:* Dr. Ahmad K. Elshennawy**, Professor and Executive Director of The UCF Quality Institute, Department of Industrial Engineering and Management Systems, University of Central Florida (UCF), USA				
		***Keynote:* Jeffrey Jones**, Plant Manager, Etobicoke Casting Plant, Fiat Chrysler Automobiles, Ontario, Canada				
1:00	***Lunch Keynote:* Dr. Gursel Suer**, Professor, Industrial and Systems Engineering, Ohio University, Athens, Ohio, USA					
2:00	Networking Break					
2:30	**Industry Solutions III Lean Six Sigma Panel Session**	**Global Engineering Education II**	**Undergraduate Student Paper Competition**	**Graduate Student Paper Competition**	**Quality**	**Six Sigma and SPC**
4:00	Networking Break					
4:30	**Industry 4.0 / Industry Solutions IV: Industry 4.0**	**Global Engineering Education III**	**Undergraduate Student Paper Competition**	**OPEN**	**Supply Chain Management**	**Business Management**

Thursday, October 24, 2019

	MacDonald Room	Mackenzie Room	Algonquin 1	Algonquin 2	Algonquin 3	Algonquin 4
8:00	**Industry Solutions V iCloud / AI / Data Analytics**	**Global Engineering Education IV**	**Engineering Management**	**Production and Systems Engineering**	**Case Studies**	**Operations Management**
9:40	***Keynote:* Dr. Andrew K.S. Jardine**, Professor Emeritus, Industrial Engineering, Dept. of Mechanical and industrial Engineering and Founding Director of the Centre for Maintenance Optimization & Reliability Engineering, University of Toronto, Canada					
10:20	***Keynote:* Peter Merrill**, President, Quest Management Inc., Canada					
11:00	Networking Break					
11:30	**Healthcare and Environmental Sytems**	**Manufacturing and Systems Engineering**	**Industry 4.0 and Talent Pipeline** **Dr. David Pistrui,** Industry Liaison, Director, Graduate Recruiting, Clinical Professor of Engineering, College of Engineering & Science, University of Detroit Mercy, Detroit, MI, USA **Dr. Darrell Kleinke,** Prof. of Mechanical Engineering, Director of Professional Engineering Programs, University of Detroit Mercy, Detroit, Michigan, USA			
1:00	Networking Lunch					
1:40	***Lunch Keynote:* Eric Ayanegui,** CPMM, CRL, Director Operations Engineering, Cintas Corporation, Houston, Texas, USA					
2:30	**Industry Solutions VII – MSV / AR / VR**	**Global Engineering Education VI**	**Energy**	**Manufacturing**	**Human Factors & Ergonomics**	**Lean Six Sigma and SCM Competitions**
4:00	Networking Break					
4:30	**Industry Solutions VIII: Industry 4.0**	**Women in Indstry and Academia (WIIA) Panel Session**	**Lean**	**Data Analytics**	**Modeling and Simulation**	**Simulation Competition**
6:00 pm – 8:00 pm: Poster Session, Senior Design Poster Competition and Undergraduate & Graduate Poster Competition						

Friday, October 25, 2019

	MacDonald Room	Mackenzie Room	Algonquin 1	Algonquin 2	Algonquin 3	Algonquin 4
8:00	**Industry Solutions IX – Automation / Robotocs**	**MS & Doctoral Thesis Competitions**	**Undergraduate STEM Research Competition**	**Manufacturing**	**Modeling and Simulation**	**Lean and Project Management**
9:40	***Keynote:* Todd Deaville**, Director of Engineering and R&D, Magna International Inc., Toronto, Canada					
10:20	***Keynote:* Dr. Samir Elhedhli**, Professor, Dept. of Management Sciences, Faculty of Engineering, University of Waterloo, Canada					
11:00	Networking Break					
11:30	**Industry Solutions X: Industry 4.0**	**KEYNOTE** **11:30: Birsen Donmez, Ph.D.,** Associate Professor, Department of Mechanical and Industrial Engineering Canada Research Chair in Human Factors and Transportation, University of Toronto, Ontario, Canada **12:15: Cheryl Thompson,** Founder and CEO of CADIA, Center for Automotive Diversity, Inclusion & Advancement, Detroit, USA				
1:00	Networking Lunch					
1:40	***Lunch Keynote:* Mr. Lee Childers**, Chief Executive Officer, Tooling Tech Group, Macomb, Michigan, USA					
2:30	**Industry Solutions XI**	**Workshop on Entrepreneurship**	**Human Factors and Ergonomics**	**Supply Chain and Logistics**	**Sustainable Manufacturing**	**Energy**
4:00	Networking Break					
4:30	**Industry 4.0 PANEL Session**	**OPEN**	**Case Studies**	**Decision Sciences**	**Information Systems and e-Business**	**Reliability and Maintenance**
7:00 pm – 10:00 pm: **Conference Awards Dinner and Awards Keynote Speakers** **Dr. Devashis Mitra**, Dean, Faculty of Business Administration, University of New Brunswick, Fredericton, Canada **Dr. Abdur Rahim**, Professor, Faculty of Business Administration, University of New Brunswick, Fredericton, Canada						

October 23, 2019 (Wednesday)

Session: 8:00 – 9:30 am

8:00 – 9:30, WEDNESDAY Industry Solutions I MacDonald Room

Session Chair: Dr. Usha Ramanathan, Nottingham Trent University, UK

8:00 – 8:20 (Wednesday)
Eliane R. Rodrigues
Managing Partner of Zorfatec innovation consultancy
Researcher of LabEI-UFABC/CAPES
Factory of the future-Poli/USP, Brazil

Companies Strategies and Transformation for Maturity in Industry 4.0

8:20 – 8:40 (Wednesday)
Khalid Tantawi, PhD
Department of Career Readiness-Mechatronics
Motlow State Community College, Smyrna, TN 37167, USA

8:40 – 9:00 (Wednesday)
Dr. Samira Keivanpour
Assistant Professor, Polytechnique Montréal, Canada

The Perspectives of Industry 4.0 in Operationalization of Sustainable Development

9:00 am – 9:20 am (Wednesday)
Dr. Usha Ramanathan
Professor of Sustainability and Supply Chains
Nottingham Trent University, UK

Dr. Muthu Mathirajan
Chief Research Scientist
Indian Institute of Science (IISc), India

ID 123 Improving Infrastructure of E-tailing in India for Environmental Sustainability
Usha Ramanathan, Nottingham Business School, Nottingham Trent University, United Kingdom
Muthu Mathirajan, Indian Institute of Science Bangalore, India

9:20 – 9:40 (Wednesday)
Saul B. Henderson
Researcher, Department of Electrical and Computer Engineering
University of the District of Columbia, Washington, DC, USA

ID 500 Emerging Trends in Industry 4.0 with Innovative Case Study of Human Balance & Rehabilitation Engineering

8:00 – 9:30, WEDNESDAY Global Engineering Education I Mackenzie Room

Session Chair: Daniel M Ferguson, Purdue University, West Lafayette, IN 47907, USA

8:00 – 8:20 (Wednesday)
Kapil Gupta, Doctor Mukhawana, Madindwa Mashinini
Department of Mechanical and Industrial Engineering Technology
University of Johannesburg, Johannesburg, South Africa

ID 279 A Project Based Learning Tool for Industry 4.0 Manufacturing Engineering Education
Kapil Gupta, Doctor Mukhawana, Madindwa Mashinini, University of Johannesburg**,** Johannesburg, South Africa

8:20 – 8:40 (Wednesday)
Dr. Fouzia Baki
Mechanical, Automotive and Material Engineering (MAME)
University of Windsor, Windsor, ON N9E 4C4, Canada

ID 049 Assessing Foreign Engineering Graduate Students' Understanding of Sustainable Development - A Survey
Fouzia Baki, Mechanical, Automotive and Material Engineering (MAME)**,** University of Windsor**,** Windsor, Canada

8:40 – 9:00 (Wednesday)
Behzad Beigpourian, Daniel M Ferguson, Matthew W Ohland and Siqing Wei
Department of Engineering Education
Purdue University, West Lafayette, IN 47907, USA

ID 124 Cohesiveness in Engineering Students Teams: Effect of Gender, Race, Year of Study, GPA, Previous Course Grade and Some Prerequisite Knowledge
Behzad Beigpourian, Daniel M Ferguson, Matthew W Ohland and Siqing Wei, Department of Engineering Education**,** Purdue University, USA

8:00 – 9:30, WEDNESDAY Logistics Algonquin 1

Session Chair: Robert R. Inman, General Motors Company, Warren, MI, USA

ID 121 Medical Tourism in Colombia: A Documentary Analysis of the Components of Economic, Social and Environmental Sustainability
Oscar A. Vásquez-Bernal, Benjamin Pinzón-Hoyos, School of Basic Science, Technology and Engineering, Universidad Nacional Abierta y a Distancia UNAD, Bogotá D.C, Colombia.
William E. Mosquera-Laverde, Faculty Administrative and Economic Sciences, Universidad Cooperativa de Colombia, Bogotá D.C, Colombia

ID 152 Proposal of an Intermodal Transport Cost Structure of the Cocoa Productive Chain for the Logistic Corridor between Yacopí and the Port of Santa Marta
Jefferson Rubiano Forero, Investigative group (GIPIA), Universidad de Cundinamarca, Soacha, Colombia
Ceudiel Alexis Valero Portilla, Sebastien Erik Benoit Dufeu, Investigative group (SEPRO), Universidad Nacional de Colombia, Bogotá, Colombia

ID 345 Workup of Reverse Logistics Practices in the Management of Industrial Plastics Baskets in a Poultry Company of Barranquilla
Jenniffer Morales Guerrero, Cristian Solano, Janethxy Roncallo Ortiz, Universidad del Atlántico, Barranquilla, Colombia

ID 051 Road Safety Modeling in Kuwait
Sharaf AlKheder, Fahad AlRukaibi, Ahmad Aiash, Civil Engineering Dept., College of Engineering and Petroleum, Kuwait University, Safat, Kuwait

ID 202 Vehicle Routing Challenges in the Automotive Supply Chain
Robert R. Inman, Chief Data and Analytics Office, General Motors Company, Warren, MI, USA
Rana Afzali-Baghdadabadi and Baiyang Liu Global Purchasing and Supply Chain General Motors Company, Warren, MI, USA

8:00 – 9:30, WEDNESDAY Innovation Algonquin 2

Session Chair: Nicholas Lambrache, Papua New Guinea University of Technology, Lae, Papua New Guinea

ID 163 Design and Development of an All-Around Air Controller for a Cost-Efficient Ventilation System and Structure
Erna Mae Antonio, John Cheferson De Belen, Tristan Javee Gomez, Hilario Mallari II, Maria Teresa B. Mendoza, Industrial Engineering Department, Technological Institute of the Philippines, Manila Philippines

ID 148 Development and Validation of Future-Robust Strategies: A System for a Continuous Strategy Development and Strategy Review Process Using the Sports Car Development as an Example
Florian Marthaler, Alen Rapo, Markus Spadinger, Albert Albers, Karlsruhe Institute of Technology, Kaiserstr, Germany
Andreas Siebe, ScMI – Scenario Management International AG, Klingenderstraße, Paderborn, Germany

ID 180 Technology-Push based Product Engineering based on Future Scenarios: Application for deriving product strategies at BMW AG
Florian Marthaler, Bo Hu, Albert Albers, IPEK – Institute of Product Engineering, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

ID 136 Design and Construction of an Unmanned Ground Surveillance Vehicle
Peter Oyekola, Department of Mechanical Engineering, PNG University of Technology, Morobe, Papua New Guinea
Nicholas Lambrache, Department of Mechanical Engineering, PNG University of Technology, Morobe, Papua New Guinea
Aezeden Mohamed, Department of Mechanical Engineering, PNG University of Technology, Morobe, Papua New Guinea
John Pumwa, Department of Mechanical Engineering, PNG University of Technology, Morobe, Papua New Guinea
Lidia Olaru, Jesta Group, Montreal, Quebec, Canada
Brian N'Drelan, Department of Mechanical Engineering, PNG University of Technology, Morobe, Papua New Guinea
Chuma Ebere, Department of Mechanical Engineering, Landmark University, Osun Nigeria

ID 040 Design and Simulation of Maize Sheller for Small Scale Farmers
Ignatio Madanhire, Simon Chinguwa, Elton Ntini, Department of Mechanical Engineering, University of Zimbabwe, Harare, Zimbabwe
Charles Mbohwa, Department of Quality Management and Operations Management, University of Johannesburg, Johannesburg, South Africa.

ID 135 Improved Design of Metered-Dose Inhaler Techniques
Aezeden Mohamed, Peter Oyekola, John Pumwa, Department of Mechanical Engineering, PNG University of Technology, Lae, Papua New Guinea

8:00 – 9:30, WEDNESDAY Supply Chain Management Algonquin 3

Session Chair: Emmanuel Innocents Edoun, University of Johannesburg, South Africa

ID 099 A Stochastic Optimization Approach for Locating Humanitarian Disaster Relief Centers
Parmis Emadi, Zbigniew J. Pasek, Department of Industrial Engineering, University of Windsor, Windsor, ON

ID 157 A System Dynamics Model of Apparel Supply Chain Under Mass Customization
Marwa Issa, Fashion Design Department, Faculty of Arts and Design, Pharos University In Alexandria, Alexandria, Egypt.
Sherwet Elgholmy, Aida Sheta, M. Nashat Fors, Textile Engineering Department & Industrial Engineering, Alexandria University, Alexandria, Egypt

ID 161 Analysis of Important Conditions for Supporting Logistics Cluster Integration
Teresa Verduzco-Garza, Engineering & Technologies School, Department of Engineering, University of Monterrey, San Pedro Garza García, Mexico

ID 318 Apparel Supply Chain Optimization by Developing E-Commerce: An Impact Analysis
Shibbir Ahmad, Md. Kamruzzaman, Dhaka University of Engineering and Technology (DUET), Gazipur, Bangladesh.

ID 052 Delegation versus Control under Competition and Bargaining Power Distribution in Supply Chain Procurement
Parisa Rahimi, Rassoul Noorossana, Industrial Engineering Department, Iran University of Science and Technology, Tehran, Iran
Ehsan Bolandifar, Business School, The Chinese University of Hong Kong, Hong Kong, China

ID 182 A Review of Warehouse Performance in South African Manufacturing Sector
Nakedi Macdonald Magoro and Emmanuel Innocents Edoun, University of Johannesburg, South Africa

8:00 – 9:30, WEDNESDAY **Project Management** **Algonquin 4**

Session Chair: Hong Long Chen, National University of Tainan, Tainan, Taiwan

ID 139 A Data Envelopment Analysis Approach to Determine Project Activities Weight Factor
Hadi Shirouyehzad, Negin Berjis, Department of Industrial Engineering, Islamic Azad University, Najafabad, Iran
Javid Jouzdani, Department of Industrial Engineering, Golpayegan University of Technolog, Golpayegan, Iran

ID 154 Construction Project Scheduling Evaluation Considering Correlated Risk Analysis
Alvaro Cuadros, David Ramirez Soto, Armando Orobio PhD., School of Civil Engineering and Geomatics, Universidad del Valle, Cali, Colombia

ID 308 Incentive Contracts in Project Management under Contractor's Process Improvement
Mahsa Madani Hosseini, Ted Rogers School of Management, Ryerson University, Toronto, Canada

ID 210 Influence of Ethical Aspects on the Construction Industry Performance in Egypt
Mohamed Ahmed Azzab, Mohamed Wagih Badawi, Production Engineering Department, Faculty of Engineering, Alexandria University, Egypt

ID 153 The Use of Contingency Reserves to Analyze Risk Response Actions in Project Management
Alvaro Cuadros, Leonardo Rivera, and Armando Orobio, School of Civil Engineering and Geomatics, Universidad del Valle, Cali, Colombia

ID 149 The influence of early stage project performance: Some project performance and outcome correlate
Hong Long Chen, Department of Business and Management, National University of Tainan, Tainan, Taiwan

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9:30 am – 9:40 am, Wednesday **WELCOME ADDRESS**

9:40 am – 10:20 am, Wednesday **OPENING KEYNOTE I**

Dr. Jatin Nathwani
Professor and Ontario Research Chair in Public Policy for Sustainable Energy, Executive Director, Waterloo Institute for Sustainable Energy (WISE), Faculty of Engineering and Faculty of Environment, University of Waterloo, Canada

Presentation Title: **Science and Technology for Human Betterment**

10:20 am – 11:00 am, Wednesday **OPENING KEYNOTE II**

Shalabh Bakshi
Director, Digital Enterprise and MindSphere
Digital Factory Division, Siemens Canada
Digital Enterprise "Industry 4.0" and Mindsphere "Open Cloud based IoT Operating system"

11:00 am - 11:30 am, Wednesday - Networking Break

11:30 am – 12:00 pm, Wednesday **KEYNOTE**

Dr. Ahmad K. Elshennawy
Professor and Executive Director of the UCF Quality Institute
Department of Industrial Engineering and Management Systems
University of Central Florida (UCF), USA

12:00 pm – 12:30 pm, Wednesday KEYNOTE

Jeffrey Jones
Plant Manager
Etobicoke Casting Plant, Fiat Chrysler Automobiles, Ontario, Canada

11:30 – 1:00, WEDNESDAY **Industry Solutions II** **MacDonald Room**

Session Chair: Dr. M. Ali Ülkü, Dalhousie University, Halifax, Nova Scotia, Canada

11:30 – 11:50 (Wednesday)
Dr. Rogelio Emmanuel Jáuregui Miramontes
Researcher, Centre for Management of Technology and Entrepreneurship
Chemical Engineering & Applied Chemistry, University of Toronto, Toronto, Canada

Dr. Pasi Petteri Luukka
Professor, School of Business
Lappeenranta University of Technology, Lappeenranta, Finland

Dr. Yuri A. Lawryshyn
Professor, Centre for Management of Technology and Entrepreneurship
Chemical Engineering & Applied Chemistry, University of Toronto, Toronto, Canada

ID 298 A Novel Framework for Calculating the Maintenance Improvement Factor Based on Human Error Factors and Unbiased Expert Judgment
Rogelio Emmanuel Jáuregui Miramontes, Yuri A. Lawryshyn, Centre for Management of Technology and Entrepreneurship, Chemical Engineering & Applied Chemistry, University of Toronto, Toronto, Canada

11:50 – 12:10 (Wednesday)
Dr. M. Ali Ülkü
Professor of Supply Chain and Decision Sciences
Director of Centre for Research in Sustainable Supply Chain Analytics
Rowe School of Business, Dalhousie University, Halifax, Nova Scotia, Canada

ID 259 Incentivizing Sustainability: Price Optimization for a Closed-Loop Apparel Supply Chain
Shayla Fitzsimmons, Lisa Ma, M. Ali Ülkü, Dalhousie University, Halifax, Canada

12:10 – 12:30 (Wednesday)
Medoh Chuks and Telukdarie Arnesh
Post Graduate School of Engineering Management
University of Johannesburg, Auckland Park, 2092, South Africa

ID 076 Implications of Industry 4.0 in Nigeria Electoral System
Arnesh Telukdarie, University of Johannesburg, South Africa

12:30 – 12:50 (Wednesday)
Richard Harpster
President, Harpco Systems, Inc., Farmington, Michigan, USA

Risk Based Thinking in FMEAs

1:00 – 2:30 pm **– Networking Lunch**

1:30 – 2:00 pm – Wednesday **Lunch Keynote**

Dr. Gursel Suer
Professor, Industrial and Systems Engineering
Ohio University, Athens, Ohio, USA

Session – Wednesday (October 23): 2:30 – 4:00 pm

2:30 – 4:00, WEDNESDAY **Industry Solutions III** **MacDonald Room**

Panel Session on Lean Six Sigma

Panel Chair
Steven Sibrel
Senior Supplier Quality Manager, Harman International, Novi, MI
Professional Development Chair and Past Chair - ASQ Greater Detroit

Panel Speaker I
Dr. Saso Krstovski, MBB
Lean Manufacturing Coach /Six Sigma Master Black Belt
Van Dyke Transmission Plant, Ford Motor Company, Greater Detroit, Michigan, USA

Panel Speaker II
Sanaz Ghazi, PhD, CSSBB, CRP
Senior Process Improvement Specialist, Medtronic Canada

2:30 – 4:00, WEDNESDAY **Global Engineering Education II** **Mackenzie Room**

Session Chair: Ammar Aamer, Sampoerna University, Jakarta, Indonesia

2:30 – 2:50 (Wednesday)
Ammar Aamer
Faculty of Engineering and Technology
Department of Industrial Engineering
Sampoerna University, Jakarta, Indonesia

Nesrine EL-Zine
Faculty of Arts and Humanities
Sana'a University, Sana'a Yemen

ID 271 Industrial Engineering Students' Perceptions of Flipped Classroom Experience
Ammar Aamer, Faculty of Engineering and Technology, Department of Industrial Engineering, Sampoerna University, Jakarta, Indonesia
Nesrine EL-Zine, Faculty of Arts and Humanities, Sana'a University, Sana'a Yemen

2:50 – 3:10 (Wednesday)
Chuhan Zhou, Sunjae Choi, Behzad Beigpourian, Siqing Wei, Daniel M Ferguson, Matthew W Ohland
Department of Engineering Education
Purdue University, West Lafayette, IN 47907, USA

ID 155 The Difference between Teams with No Female Students and Teams with Female Students for Peer Evaluation Behavior in Engineering Education
Chuhan Zhou, Sunjae Choi, Behzad Beigpourian, Siqing Wei, Daniel M Ferguson, Matthew W Ohland, Department of Engineering Education**,** Purdue University**,** West Lafayette, USA

3:10 – 3:30 (Wednesday)
Elaiza E. Bautista, Glyda Aricon B. Marquez, and Sheila May P. Gappi
Industrial Engineering Department
Technological Institute of the Philippines, Quiapo Metro Manila, Philippines

Jaypy T. Tenerife and Maria Teresa B. Mendoza
Industrial Engineering Department
Technological Institute of the Philippines, Quiapo Metro Manila, Philippines

ID 162 Unravelling the Stereotypes of Women in Industrial Engineering
Elaiza E. Bautista, Glyda Aricon B. Marquez, Sheila May P. Gappi, Industrial Engineering Department, Technological Institute of the Philippines, Quiapo Metro Manila, Philippines
Jaypy T. Tenerife, Maria Teresa B. Mendoza, Industrial Engineering Dept., Technological Institute of the Philippines, Quiapo Metro Manila, Philippines

2:30 – 4:00, WEDNESDAY Undergraduate Student Paper Competition Algonquin 1

Session Chair: Dr. Sarder E. Sadique, California Polytechnic State University, San Luis Obispo, California, USA

ID 102 Cluster Factors for Productivity Improvement: A Case Study for a Home Appliance Cluster in Mexico
Karol Villarreal, Karla Guerra, Ruben Molina, Luz Maria Valdez de la Rosa, Engineering Management Dept., Universidad de Monterrey, NL, Mexico

ID 156 Implementation of Analytics Procedures to Predict Stock-Outs in Store for a Retailer. A Case in Mexico
Cinthya Yaresi Tamez Silva, Ana Patricia Sepúlveda González, Martín Flores Maradiaga, Juan Ignacio González Espinosa, Business Management Engineering Department, University of Monterrey, Mexico

ID 101 Lean Manufacturing Maturity Model for Automotive Cluster
Hector David Colín-Lozano, Sonia Guerra-Loji and Martha Arely Vargas-Alvarado, Luz María Valdez-de la Rosa, Jesús Vázquez-Hernández, Engineering Management Program, University of Monterrey, Nuevo León, México

ID 187 Reducing Finished Cardboard Carton Inventory: A Case Study
Gabriel Schroeder, Karen Treviño & Bernardo Villarreal, Universidad de Monterrey, San Pedro Garza, Garcia, N.L

ID 146 Renewable Waste Water and Filtration System with Phytoremediation Used in Aquaculture of Freshwater Ornamental Fish
Charlotte Palao, Glyda Aricon Marquez, Kenneth Ibasco, Lady Claudette Ferrer, Patricia Sagge, Maria Teresa B. Mendoza, Industrial Engineering Department, Technological Institute of the Philippines, Quiapo Metro Manila, Philippines

2:30 – 4:00, WEDNESDAY Graduate Student Paper Competition Algonquin 2

Session Chair: Judging Chair

ID 100 Aircraft Engine Remaining Useful Life Prediction Framework for Industry 4.0
Hussein A. Taha, Ahmed H. Sakr and Soumaya Yacout, Department of Mathematics and Industrial Engineering, Polytechnique Montréal, Canada

ID 230 Impact of a Cloud-Based Applied Supply Chain Network Simulation Tool on Developing Systems Thinking Skills of Undergraduate Students
Jeanne-Marie Lawrence, Niamat Ullah Ibne Hossain, Morteza Nagahi and Raed Jaradat, Department of Industrial and Systems Engineering, Mississippi State University, Starkville, MS 39759, USA

ID 519 Internet of Things Health Monitoring System Using Raspberry Pi
Jamila Brooks and Alison Brown, Talladega College, Talladega, AL, USA

2:30 – 4:00, WEDNESDAY Quality Algonquin 3

Session Chair: Yugowati Praharsi, Shipbuilding Institute of Polytechnic Surabaya, Jl. Teknik Kimia Kampus ITS, Indonesia

ID 125 An Evaluation of the Quality Management Systems (QMS) at a South African Electricity State Owned Company Compared to the Requirement of ISO 9001:2015
Sambil Charles Mukwakungu, Jonathan Eljadael Kasongo, Kidoge Ibrahimu, Charles Mbohwa, Department of Quality and Operations Management, University of Johannesburg, Johannesburg, South Africa

ID 283 Customer Satisfaction Survey of Quality Management System in the Medical Industry
Sihle Mankazana, Matimba Davis Mabasa, Temosho Bapela, Rush Mpho Maphosa, Sambil Charles Mukwakungu, Department of Quality and Operations Management, University of Johannesburg, Johannesburg, South Africa

ID 104 Improvement of the RNP in the Application of the FMEA in Automotive Processes
Leonardo Gabriel Hernández-Landa, Azucena M. García-León, Rosa E. Mata-Martinez, Industrial Engineering and Management Area, Facultad de Ciencias Químicas, Universidad Autónoma de Nuevo León, México

ID 255 Lean Management and Analysis - An Empirical Study of a Traditional Shipbuilding Industry in Indonesia
Yugowati Praharsi, M. Abu Jami'in, Gaguk Suhardjito, Shipbuilding Institute of Polytechnic Surabaya, Jl. Teknik Kimia Kampus ITS, Indonesia
Hui-Ming Wee, Chung Yuan Christian University, Chung Pei, Chung Li City, Taiwan

ID 105 The Importance of Quality Management System and Leadership in the South African Restaurant, Fast Food and Catering Sector - Case of the Gauteng Region
S.C. Mukwakungu, A.K. Lumbwe, D. Niati, C. Mbohwa, Dept. of Quality and Operations Management, University of Johannesburg, South Africa

2:30 – 4:00, WEDNESDAY Six Sigma and SPC Algonquin 4

Session Chair: Mojtaba Aghajanpoorpasha, Rob Deardon, University of Calgary, Calgary, Canada

ID 256 Six Sigma Implementation and Analysis - An Empirical Study of a Traditional Shipbuilding Industry in Indonesia
Yugowati Praharsi, M. Abu Jami'in, Gaguk Suhardjito, Shipbuilding Institute of Polytechnic Surabaya, Jl. Teknik Kimia Kampus ITS, Indonesia
Hui-Ming Wee, Chung Yuan Christian University, Chung Pei, Chung Li City, Taiwan

ID 325 Incorporating a Reliability Engineering Tool in Economic and Economic Statistical Design of Control Charts With Non-Uniform Inspection Scheme
Shabnam Fani, Mojtaba Aghajanpoorpasha, University of Calgary, Calgary, Canada

ID 043 The Role of Validations and Quality Management Systems Related Regulatory Observations in the Global Pharmaceutical Engineering Sector
Sagaram.Sudhakar, Associate Professor, Department of Pharmacy, College of Health Sciences, Wollega University Nekmete, Ethiopia

4:00 – 4:30 pm: Networking Break

Session – Wednesday (October 23): 4:30 – 6:00 pm

4:30 – 6:00, WEDNESDAY Industry Solutions IV: Industry 4.0 MacDonald Room

Session Chair: Dr. Sundaravalli Narayanaswami, Indian Institute of Management Ahmedabad (IIM Ahmedabad), India

4:30 – 4:50 (Wednesday)
Muhamad Fariz Failaka
Senior Process Engineer and Certified Energy Manager
PT Pupuk Kalimantan Timur, Bontang, Indonesia

Best Practices for Successful Implementation of Energy Management System in the Fertilizer Industry: A Case Study of Pupuk Kaltim Fertilizer Company in Indonesia

4:50 – 5:10 (Wednesday)
Ramakrishnan Ramanathan, Yanqing Duan, Tahmina Ajmal, Feng Dong and Samuel Van Ransbeeck
University of Bedfordshire, United Kingdom

Joaquim Manoel Monteiro Valverde and Silma Battezzati Valverde
Instituto Federal de Educação, Ciência e Tecnologia Catarinense, Santa Catarina, 89051-000, Brazil

ID 127 IoT sensors in Aquaculture – Barriers and Facilitators for sustainability in Brazilian Context
Ramakrishnan Ramanathan, Yanqing Duan, Tahmina Ajmal, Feng Dong and Samuel Van Ransbeeck, University of Bedfordshire, United Kingdom
Joaquim Manoel Monteiro Valverde, Silma Battezzati Valverde, Instituto Federal de Educação, Brazil

5:10 – 5:30 (Wednesday)
Dr. Soumaya Yacout
Professor, Department of Mathematics and Industrial Engineering
Polytechnique Montreal, Montreal, Quebec, Canada

ID 061 Industrial Value Chain Research and Applications for Industry 4.0
Dr. Soumaya Yacout, Department of Mathematics and Industrial Engineering**,** Polytechnique Montreal**,** Montreal, Quebec, Canada

5:30 – 5:50 (Wednesday)
Dr. Sundaravalli Narayanaswami
Chairperson, Public Systems Group
Indian Institute of Management Ahmedabad (IIM Ahmedabad), India

ID 322 Innovation and Productivity of Indian Railways: Industry 4.0 in Manufacturing of Rolling Stock
Dr. Sundaravalli Narayanaswami, Indian Institute of Management Ahmedabad**,** India

4:30 – 6:00, WEDNESDAY Global Engineering Education III Mackenzie Room

Session Chair: Dr. Arwa Y. Aleryani, Associate professor in Information Technology, Mississauga ON, Canada

4:30 – 4:50 (Wednesday)
ID 062 Natural Language Processing System for Self-Reflection and Peer-Evaluation
Rui Wang, Siqing Wei, Matthew W. Ohland, Daniel M. Ferguson, School of Electrical and Computer Engineering, Purdue University, IN, USA

4:50 – 5:10 (Wednesday)
Dr. Arwa Y. Aleryani
Associate professor in Information Technology
Mississauga ON, Canada

The development of key competencies of engineering and technology graduates

5:10 – 5:30 (Wednesday)
Ammar Aamer, Ph.D.
Dean of Faculty of Engineering and Technology, Sampoerna University, Indonesia

Title: Transnational Engineering Education in South East Asia (Challenges and Opportunities)

4:30 – 6:00, WEDNESDAY Undergraduate Student Paper Competition Algonquin 1

Session Chair: Dr. Sarder E. Sadique, California Polytechnic State University, San Luis Obispo, California, USA

ID 119 User Experiences of the General Population on Accessible Web Interface
Jia Lin Cheoh, Department of Computer Science, Purdue University, West Lafayette, Indiana, USA
Jiaxin Wang, Department of Computer Engineering, Purdue University, West Lafayette, Indiana, USA
Zhibo Hou, Department of Electrical Engineering, Purdue University, West Lafayette, Indiana, USA
Siqing Wei, Prof. Daniel Ferguson, Prof. Matthew Ohland, Department of Engineering Education, Purdue University, West Lafayette, Indiana, USA

ID 158 A Lean Six Sigma Project to Reduce Waste and Variability in a Confectionery Manufacturing
José Daniel Ibarra, Andrés Robles, Alejandro Montemayor, Angel Iñiguez, Andrés Blanco, Alexis Torrecillas, Department of Engineering, Universidad de Monterrey, San Pedro Garza García, México

ID 387 Reducing Variation at the Measuring System for the Copper Harpin Quality Inspection in Handling Material Stations
Sara Renata González Cruz and Regina Márquez Reynoso, Instituto Tecnológico y de Estudios Superiores de Monterrey, Querétaro, México

ID 307 Incorporate Data Analytics Tools to Optimize the SLP Method with Application to a Plant of a Leading Global Company
Frida Aizaneth Sevilla Medina, Silvia Stephanie Arreola Castillo, Laura Valeria González Aguirre and Edgar Granda, Universidad De Monterrey, Mexico

ID 423 Recycling PET with Containment Utility Bin Through Insertion and Tucking Operation (CUBITO) - 3D Printed Self-Assembles: 3D Shells
Rocio Fernandez, Veronica Diaz and Mauricio Cabrera, Applied Optimization Group, University of Puerto Rico Mayagüez, Puerto Rico

ID 444 Recommendation for Technician Strategies: Report Prepared for Orchid Orthopedic Solutions
Diana Graham, University of Michigan, Dearborn, United States

4:30 – 6:00, WEDNESDAY Supply Chain Management Algonquin 3

Session Chair: Shayla Fitzsimmons, Dalhousie University, Halifax, Canada

ID 327 Evaluation assessment of Warehouse Performance in Manufacturing Industries
Macdonald Nakedi Magoro, Dr Emmanuel Edoun, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

ID 326 Evaluation of Warehouse Performance in South African Manufacturing Sector
Macdonald Nakedi Magoro, Dr Emmanuel Edoun, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

ID 259 Incentivizing Sustainability: Price Optimization for a Closed-Loop Apparel Supply Chain
Shayla Fitzsimmons, Lisa Ma, and M. Ali Ülkü, Dalhousie University, Halifax, Canada

ID 319 Mathematical modeling of supply chain optimization in apparel manufacturing
Shibbir Ahmad, Md. Kamruzzaman, Mechanical Engineering Department, Dhaka University of Engineering Technology, Gazipur, Bangladesh.
Mahathir Mohammad Bappy, Industrial and Production Engineering, Shah Jalal University of Science & Technology, Sylhet, Bangladesh.

ID 142 Modeling of Supply Chain Risk in the Leather Industry
Ahmed Shoyeb Raihan, Farzana Islam, Syed Mithun Ali, Department of Industrial & Production Engineering, Bangladesh University of Engineering & Technology Dhaka, Bangladesh

ID 020 Supply Chain of Energy Resources and Its Alternatives Due to the Arab Spring: The Case of Egyptian Natural Gas Flow to Jordan
Moh'd Anwer AL-Shboul, Business Administration Department, Princess Sumaya University for Technology (PSUT), Amman, Jordan

4:30 – 6:00, WEDNESDAY Business Management Algonquin 4

Session Chair: Evo Sampetua Hariandja, Universitas Pelita Harapan, Tangerang, Indonesia

ID 204 Assessing the Preparedness of Technology Business Incubators to Provide Services Aligned to the 4th Industrial Revolution: A South African perspective
Phumuza Langa, E.I Edoun, C. Mbohwa, University of Johannesburg, South Africa

ID 117 Factors That Contribute Towards Cost Overruns In An African Mega-Project
O.J Malebye, A. Telukdarie, Department of Post Graduate School of Engineering Management, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

ID 282 Service Innovation Capability of Hotel Industry: The Preliminary Study to Generate Indicators from Practitioners
Evo Sampetua Hariandja, Juniarty, Department of Management Faculty of Economics and Business, Universitas Pelita Harapan, Indonesia

ID 281 The Preliminary Study of Dynamic Marketing Capability of Hotel Industry: Generate Indicators from Practitioners
Evo Sampetua Hariandja, Yokie Radnan Kristiyono, Department of Management Faculty of Economics and Business, Universitas Pelita Harapan, Tangerang, Indonesia

ID 280 The Relationship Between Strategic Orientation and Organizational Performance in Online Transportation
Evo Sampetua Hariandja, and Josephine Mulyani, Department of Management Faculty of Economics and Business, Universitas Pelita Harapan, Tangerang, Indonesia

ID 036 What Does Corporate Social Responsibility Encompass? A Literature Synthesis
Thatshayini, P., Treats Holdings Ltd., Acton, London, UK
Damitha Rajini, Fathima Sabrina Nazeer, Department of Building Economics, University of Moratuwa, Sri Lanka

October 24, 2019 (Thursday)

Session: 8:00 – 9:30 am

8:00 – 9:30, THURSDAY Industry Solutions V MacDonald Room

Session Chair: Dr. Birgit Oberer, Eidgenössische Technische Hochschule, Zurich, Switzerland

8:00 – 8:20 (Thursday)
M. A. Pasha and R. Deardon
Postdoctoral Associate, Department of Mathematics and Statistics
University of Calgary, Canada

Dr. Rob Deardon
Associate Professor of Biostatistics
Faculty of Veterinary Medicine and Department of Mathematics & Statistics
University of Calgary, Canada

ID 363 On Minimum Cost Non-uniform Sampling Schemes for Optimal Design of Control Charts: Application to X-bar and T2 Control Charts

8:20 – 8:40 (Thursday)
Dr. Biswajit Sarkar
Associate Professor, Department of Industrial Engineering
Yonsei University, Seoul, South Korea

ID 377 Maintenance of a highly perishable lifesaving product under a healthcare supply chain management

8:40 – 9:00 (Thursday)
Prof. Arnesh Telukdarie
Post Graduate School of Engineering Management, Faculty of Engineering and the Built Environment
University of Johannesburg, South Africa

ID 078 An evaluation of the fourth industrial revolution adoption in manufacturing industries: An African context
Arnesh Telukdarie, University of Johannesburg, South Africa

9:00 – 9:20 (Thursday)
Dr. Birgit Oberer
Associate Professor of Management Information Systems
Researcher, Eidgenössische Technische Hochschule, Zurich, Switzerland
Evaluation Panel Group Member - IoT Open Innovation Lab of the IoT Research Center @ Northeastern University

Digital Transformation 4.0: Increasing Productivity of the Transportation Sector with Internet of Things and Digitalization

8:00 – 9:30, THURSDAY Global Engineering Education IV Mackenzie Room

Session Chair: Dr. Mario Chauca, Ricardo Palma University, Santiago de Surco, Peru

8:00 – 8:20 **(**Thursday**)**
Dr. Mario Chauca
Professor and Vice Rectorate Research Advisor
Ricardo Palma University
Santiago de Surco 15039, Peru

Project Based Learning with Active Action Using Successive Repetitions in Engineering Education

8:20 – 8:40 **(**Thursday**)**
Dr. Daw Alwerfalli
Professor and Director of Master of Engineering Management Program
A. Leon Linton Department of Mechanical Engineering, College of Engineering
Lawrence Technological University, Southfield, Michigan, USA

ID 354 Entrepreneurs: The Driving Force behind Small Business
Iman Youssef, International University of California
Daw Alwerfalli, College of Engineering, Lawrence Technological University, Southfield, Michigan, USA

8:40 – 9:00 **(**Thursday**)**
Ms. Iman Youssef, MA. ILC. CA
CEO, Amour Fragrances and CEO, Best Canadian Liquidation (BCL)
LaSalle, Ontario, Canada

ID 355 Conducting a Feasibility Analysis and Crafting a Winning Business Plan
Iman Youssef, International University of California
Daw Alwerfalli, Professor, College of Engineering, Lawrence Technological University, Southfield, Michigan, USA

9:00 – 9:20 **(**Thursday**)**
Ms. Mouchou Tchamdjeu Rosine and Dr. Opeyeolu Timothy Laseinde
Mechanical and Industrial Engineering Department
University of Johannesburg, DFC campus, Johannesburg, South Africa

ID 378 Transforming industrial engineering course content using an industry 4.0 MOOC based feedback approach

8:00 – 9:30, THURSDAY Engineering Management Algonquin 1

Session Chair: Muztoba Ahmad Khan, West Virginia University, United States

ID 081 Barriers to BDPA applications in Sustainable HSC Practices
Surajit Bag, Arnesh Telukdarie, Faculty of Engineering and Built Environment, University of Johannesburg, South Africa

ID 299 Criteria for measuring Sustainable Construction Project Performance in Nigeria
Sanmi Olowosile, Department of Quantity Surveying, Federal University of Technology Akure, Nigeria
Ayodeji Oke, Clinton Aigbavboa, Sustainable Human Settlement and Construction Research Centre, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

ID 075 Maintenance strategy optimisation for load haul dumpers used in the South African underground hard rock mine
Mpho Manenzhe, Telukdarie Arnesh, Medoh Chuks, Post Graduate School of Engineering Management, University of Johannesburg, South Africa

ID 014 Modeling of Enablers for Implementing ICT Enabled Wireless Control in Industry: an Integrated ISM and Fuzzy MICMAC Approach
Dr. Jayalakshmi.B, Instrumentation and Control Engineering Department, NSS College of Engineering, Palakkad, Kerala, India.
Haritha .H, Programmer Analyst, Cognizant Technology Solutions, Kochi, INDIA
Abijith Maniyeri, MENS, University of Southern Queensland, Toowoomba, AUSTRALIA

ID 072 Overall equipment effectiveness optimisation for a reserves constrained underground coal mine in South Africa
Moeketsi Maimela, Telukdarie Arnesh, Post Graduate School of Engineering Management, University of Johannesburg, South Africa

8:00 – 9:30, THURSDAY Production and Systems Engineering Algonquin 2

Session Chair: Dr. Ahm Shamsuzzoha, University of Vaasa, Finland

ID 274 Influence of Wood Fly Ash Reinforcement on the Wear Behaviour of Friction Stir Processed Aluminium-Based Surface Matrix
Omolayo M. Ikumapayi, Esther T. Akinlabi, Oluseyi P. Oladijo, Stephen. A. Akinlabi, University of Johannesburg, South Africa
Jyotsna D. Majumdar, Department of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, INDIA

ID 212 Decontamination of heavy metals in water aligned with Operational Excellence
Jacobo Tijerina Aguilera, Nancy Lucero Tapia Ruíz, Gerardo Espinosa Garza, Consulting and Research Division, Universidad de Monterrey, México
Imelda de Jesús Loera Hernández, School of Engineering and Science, Instituto Tecnológico y de Estudios Superiores de Monterrey, México

ID 213 Productivity in Decontamination of heavy metals in water with orange peel
Jacobo Tijerina Aguilera, Nancy Lucero Tapia Ruíz, Gerardo Espinosa Garza, Consulting and Research Division, Universidad de Monterrey, México
Imelda de Jesús Loera Hernández, School of Engineering and Science, Instituto Tecnológico y de Estudios Superiores de Monterrey, México

ID 045 Architectural Model of Implementation of Bulding Information Modeling - BIM in the Colombian Construction Industry
Camilo Andrés Vaca Pinilla, Lina Nataly Alvarado Riaño, Diseñadores de Ambientes de Tecnología DATEC, Universidad Nacional de Colombia sede Bogotá, Colombia

ID 037 Implementation of Augmented Reality in the Context of Industry 4.0: A Comprehensive Review
Madiha Rafaqat, Kashif Ishfaq, Naveed Ahmed, Department of Industrial and Manufacturing Engineering, University of Engineering and Technology, Lahore, Pakistan

ID 227 Implementing IoT for the Detection of Production Machine Failures
Ahmed Badwelan, Moath Alatefi, Atef M. Ghaleb, Ali M. Alsamhan, Department of Industrial Engineering, College of Engineering, King Saud University, Riyadh, Saudi Arabia

8:00 – 9:30, THURSDAY **Case Studies** **Algonquin 3**

Session Chair: Chinedu Egbuonu, Concordia University, Montreal, Quebec, Canada

ID 272 A Novel Mathematical Programming Approach for Aggregate Proportioning: A Case Study for Highway Construction
Anil Kumar Agrawal, Devendra Mohan, Civil Engineering Department, Indian Institute of Technology (BHU), Varanasi, India

ID 200 Identification of Dominant Customer Behavior Patterns among Different Sectors over Time: A Case Study
Shaya Sheikh, Department of Operations and Supply Chain Management, New York Institute of Technology, NY, USA
Vahid Kayvanfar, Department of Industrial Engineering, Amirkabir University of Technology, Tehran, Iran
Iman Gharib, Department of Management and Economic, Science and Research Branch Azad University, Tehran, Iran
Sahar Bigdeli, Department of Management, Economic and Accounting, Azad university of Tabriz, Tabriz, Iran

ID 306 Organizational Commitment of Lecturer: Investigation of Generation X in XYZ University
Yohana F. Cahya Palupi Meilani, Evo Sampetua Hariandja, Department of Management Faculty of Economics and Business, Universitas Pelita Harapan, Tangerang, Indonesia

ID 041 Use of Biogas as Alternative Fuel for Tobacco Curing: Case for Zimbabwe
Ignatio Madanhire, Simon Chinguwa, Tendai Sakala, Department of Mechanical Engineering, University of Zimbabwe, Zimbabwe
Charles Mbohwa, Department of Quality Management and Operations Management, University of Johannesburg, Johannesburg, South Africa

ID 208 Evaluating Impacts of Coal Mining on South African Environment: A Step to Actualizing Society 4
Stephen Akinwale Akinlabi, and Augustin Madouma Ma Lewandja, Charles Mbohwa, Department of Quality and Operations Management, University of Johannesburg, South Africa

8:00 – 9:30, THURSDAY **Operations Management** **Algonquin 4**

Session Chair: Aamirah Mohammed Ashraf, University of Windsor, Windsor, Canada

ID 159 Composite Index Creation Using AHP and DEA: Efficiency Optimization for Industries
Andrea Irina Yzeiri, Dr. Fazle Baki, Odette School of Business, Management Science, University of Windsor, Windsor, Canada

ID 209 Risk Associated with Non-Compliance of Organization Processes on Strategy Implementations
Stephen A. Akinlabi, Virginia Harris, Charles Mbohwa, Department of Quality and Operations Management, University of Johannesburg, South Africa

ID 060 Vehicle routing problem: case study in a retail automotive parts company
Leonardo G. Hernández-Landa, Argelia Vargas Moreno, Patricia Puente, Industrial Engineering and Management Departament, Universidad Autónoma de Nuevo Leó, México

ID 188 Measurement and Assessment of Efficiency in Technical and Vocational Education in Colombia using Data Envelopment Analysis
Yeison Ramos-Naranjo, Gloria Rodríguez-Lozano, School of Business Administration and Public Accounting, Universidad Nacional de Colombia

ID 432 Deliver or Not? Optimal Revenue, Capacity, and Delivery Fee Policies for Future Drone-Based Delivery System
Zhangchen Hu and Senay Solak, Department of Operations and Information Management, University of Massachusetts Amherst, Amherst, MA, USA
Heng Chen, Department of Supply Chain Management, University of Nebraska-Lincoln, Lincoln, NE 68588, USA

9:40 – 11:00 am: **Thursday Morning Keynote I & II**

9:40 – 10:20 am: **Thursday Morning Keynote I**

Dr. Andrew K.S. Jardine

Professor Emeritus, Industrial Engineering, Dept. of Mechanical and industrial Engineering and Founding Director of the Centre for Maintenance Optimization & Reliability Engineering (C-MORE), University of Toronto, Canada

10:20 – 11:00 am: **Thursday Morning Keynote II**

Peter Merrill

President, Quest Management Inc., Canada

11:00 – 11:30 – Networking Break

Session – Thursday (October 24): 11:30 am – 1:00 pm

11:30 – 1:00, THURSDAY **Healthcare and Environmental Sytems** **MacDonald Room**

Session Chair: Mahsa Madani Hosseini, Ryerson University, Toronto, Canada

ID 002 Assessing the Potential to Produce Shoe wax using Agricultural Waste Bio char as an Additive
M. M. Manyuchi, C. Mbohwa, E. Muzenda, BioEnergy and Environmental Technology Centre, University of Johannesburg, South Africa
T. Hondo, Department of Chemical and Process Systems Engineering, Harare Institute of Technology, Zimbabwe

ID 001 Vermicomposting of Commercial Bio waste as a Solution to Waste Management in a Bio Economy
M. M. Manyuchi, C. Mbohwa, E. Muzenda, BioEnergy and Environmental Technology Centre, University of Johannesburg, South Africa
T. N. Mutusva, Department of Mathematical Sciences, Harare Institute of Technology, Zimbabwe

ID 226 A Data-Driven Analytical Model for Predicting Functional Loss and Recovery Among Older Adults
Mahsa Madani Hosseini, Ted Rogers School of Management, Ryerson University, Toronto, Canada
Manaf Zargoush, Health Policy and Management, DeGroote School of Business, McMaster University, Canada
Farrokh Alemi, Department of Health Adm. & Policy, George Mason University, USA

ID 373 Water Crisis in the Southern Bangladesh: A Planning and Implementing GAP for Leveraging and Developing A Business Model Through Public-Private and Community Partnership (PPCP)
Khan Mohammad Elyas, Enterprise Development Officer, Winrock International, Khulna, Bangladesh

11:30 – 1:00, THURSDAY Manufacturing and Systems Engineering Mackenzie Room

Session Chair: Mohammad Habibur Rahman, University of Wisconsin-Milwaukee, Milwaukee, WI 53211, USA

ID 140 System Dynamics as a Solution in Increasing Regional Cash of Daerah Istimewa Yogyakarta by Considering Employment Availability and Traffic Congestion
Zakka Ugih Rizqi, Department of Industrial Engineering, Islamic University of Indonesia, Yogyakarta, Indonesia

ID 007 Model-Based Engineering of a Process Wash Plant using SysML: Case study of beneficiation processes in a phosphate industry
Mariem Ait Bakader, Laurent Deshayes, Mohammed VI Polytechnic University, BENGUERIR, MOROCCO
Mohammed El Asri, Sidi Mohamed Ben Abdellah University, FES, MOROCCO

ID 144 Improving Modeling and Forecasting of Fuel Selling Price Using Support Vector Machines: Case Study
Zineb Aman, Haj EL MOUSSAMI, Younes Fakhradine EL BAHI, Latifa Ezzine, Moulay Ismail University Meknes, Morocco

ID 120 Experimental Analysis of Program Motion Instruction of Industrial Robotics
Hayder Zghair, Engineering Department of Automated Manufacturing Systems, University of Baghdad, Baghdad.
Ahad Ali, A. Leon Linton Department of Mechanical Engineering, Lawrence Tech University, 21000 West Ten Mile Road, Southfield, MI, USA

ID 207 TIG & MIG Hybrid Welded Steel Joint: A Review
Cynthia S. Abima, Stephen A. Akinlabi, Nkosinathi Madushele, Olawale S. Fatoba and Esther T. Akinlabi, University of Johannesburg, South Africa

ID 410 Development and Control of an Upper Extremity Robotic Exoskeleton for Rehabilitation
Tanvir Ahmed[1], Ivan A Rulik, Asif Al Zubayer Swapnil, Md Assad-Uz Zaman, Md Rasedul Islam, and Mohammad Habibur Rahman, Mechanical Engineering Department, [1]Biomedical Engineering Department, University of Wisconsin-Milwaukee, Milwaukee, WI 53211, USA

11:30 - 12:00 Thursday Keynote III

David Pistrui, Ph.D.

Industry Liaison, Director, Graduate Recruiting and Clinical Professor of Engineering
College of Engineering & Science
University of Detroit Mercy, Michigan, USA

12:00 - 12:30 Thursday Keynote IV:

Dr. Darrell Kleinke

Professor of Mechanical Engineering, Director of Professional Engineering Programs
University of Detroit Mercy, Detroit, Michigan, USA

1:00 – 2:30 pm – Thursday Networking Lunch Buffer and Lunch Keynote

14:00 – 2:00 pm - Lunch Keynote

Eric Ayanegui, CPMM, CRL

Director Operations Engineering
Cintas Corporation
Houston, Texas, USA

Session – Thursday (October 24): 2:30 – 4:00 pm

2:30 – 4:00, THURSDAY Industry Solutions VII MacDonald Room

Session Chair: Walid Abdul-Kader, University of Windsor, Canada

2:30 – 2:50 (Thursday)
Tsz-Ho Kwok, Ph.D.
Assistant Professor, Department of Mechanical, Industrial and Aerospace Engineering
Concordia University, Montreal, Quebec, H3G 1M8, Canada

Design and Interaction Interface using AR for Smart Manufacturing

2:50 – 3:10 (Thursday)
Surajit Bag and Arnesh Telukdarie
Faculty of Engineering and Built Environment
University of Johannesburg, South Africa

ID 080 Impact of Big data analytics on Innovation and Learning Performance
Surajit Bag and Arnesh Telukdarie, Faculty of Engineering and Built Environment**,** University of Johannesburg**,** South Africa

3:10 – 3:30 (Thursday)
Ibrahim Oluwole Raji
School of Industrial Engineering
LIUC - Università Carlo Cattaneo, Castellanza 21053 (VA) Italy

Dr. Tommaso Rossi
Associate Professor of Mechanical Industrial Plants at LIUC - Università Carlo Cattaneo
Director of the Executive Program Leandustry 4.0 of LIUC Business School and the Lean Club of LIUC
Scientific Manager of i-FAB, Castellanza 21053 (VA) Italy

ID 077 Exploring Industry 4.0 technologies as drivers of Lean and Agile Supply Chain Strategies
Ibrahim Raji and Tommaso Rossi, LIUC - Università Carlo Cattaneo, Italy

3:30 – 3:50 (Thursday)
Sadaf Zahoor and Walid Abdul-Kader
Department of Mechanical, Automation and Materials Engineering
University of Windsor, Canada

Mohammad Zain
Department of Industrial and Manufacturing Engineering
University of Engineering and Technology, Lahore, Pakistan

ID 184 The Prospect of Smart-Remanufacturing in Automotive SMEs: A Case Study
Sadaf Zahoor and Walid Abdul-Kader, Department of Mechanical, Automation and Materials Engineering, University of Windsor, Windsor, Canada
Mohammad Zain, Department of Industrial and Manufacturing Engineering, University of Engineering and Technology, Lahore, Pakistan

3:50 - 4:10 (Thursday)
Dr. Salah Sharieh
Sr. Director, API Delivery and Operations
RBC, Toronto, Canada

2:30 – 4:00, THURSDAY Global Engineering Education VI Mackenzie Room

Session Chair: Ian Waite, University of Central Florida, Orlando, Florida, USA

2:30 – 2:50 (Thursday)
Dr. Anjali Awasthi
Associate Professor, Concordia Institute for Information Systems Engineering
Faculty of Engineering and Computer Science
Concordia University, Montreal, Canada

2:50 – 3:10 (Thursday)
Dr. Stephen A. Akinlabi
Senior Researcher, Department of Mechanical and Industrial Engineering Technology
University of Johannesburg, South Africa

3:10 – 3:30 (Thursday)
Ian Waite
PhD Student, University of Central Florida, Orlando, Florida
Senior Customer Quality Manager, General Electric Aviation, USA

Dr. Pamela McCauley
Program Director-Innovation Corps-National Innovation Network Sites Program (I-Corps Sites)
National Science Foundation
Professor and Director of the Ergonomics Laboratory, Department of Industrial Engineering and Management Systems, University of Central Florida

3:30 – 3:50 (Thursday)
Mohammad A Rahman, Ph.D.
Manufacturing and Construction Management
Central Connecticut State University, New Britain, CT, USA

2:30 – 4:00, THURSDAY — Energy — Algonquin 1

Session Chair: Azadeh Maroufmashat, University of Waterloo, Ontario, Canada

ID 166 Optimal Operation of Cogeneration Plants in Industrial Facilities
Azadeh Maroufmashat, Nicholas Preston, Michael Fowler, Department of Chemical Engineering, University of Waterloo, Ontario, Canada
Ali Elkamel, Department of Chemical Engineering, Khalifa University, Abu Dhabi, UAE

ID 228 Performance Comparison of Selected BHS Algorithms implemented on different FPGA platforms
Hafiz Usama Hashmat, The University of Lahore, Lahore, Pakistan.
Abdul Rauf, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia.
Anjum Ali, Founder and CEO, RDM Associates, Atlanta, Georgia, USA

ID 310 Renewable energy expansion in Africa: An Overview of South Africa and Nigeria as a case study
Omoniyi Durojaye, Timothy Laseinde, Ifetayo Oluwafemi, Postgr School of Engineering Management, University of Johannesburg, RSA, South Africa

ID 024 Techno-Economic Evaluation of Hybrid Power System in Rural Area of Sarawak, Malaysia
Chan Chun Yong, Md. Mizanur Rahman, Hasan Mohd Faizal, Aminuddin Saat, Mazlan Abdul Wahid, Universiti Teknologi Malaysia, Malaysia

ID 347 Data Panel Model Solution in Forecasting Investments through Energy Electricity and Government Policy in Indonesia
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

2:30 – 4:00, THURSDAY — Manufacturing — Algonquin 2

Session Chair: Soonkyo Lee, Korea University, Seoul, South Korea

ID 214 Empirical Modeling and Multi-Attribute Optimization of Al7075 Using Response Surface Methodology-Based Desirability Approach
Sadaf Zahoor, Walid Abdul-Kader, Department of Mechanical, Automotive, and Materials Engineering, University of Windsor, Windsor, Canada
Adeel Shehzad, Muhammad Zain, Shoaib Muzaffar, Hamza Ijaz, Department of Industrial and Manufacturing Engineering, University of Engineering and Technology, Lahore, Pakistan

ID 205 The Influence of nanostructured-TiC Coating on the Mechanical Properties of Ti6Al4V Alloys Grown by RF Magnetron Sputtering
O O Abegunde, Department of Mechanical Engineering Science, University of Johannesburg, Johannesburg, South Africa
E T Akinlabi, Department of Mechanical Engineering, Covenant University, Ota, Nigeria
P Oladijo, Dept. of Chemical, Materials and Metallurgical Engineering, Botswana International University of Sci. and Technology, Palapye, Botswana

ID 126 Two-stage Meta-Heuristic Algorithm for Parallel Machine Scheduling with Additional Resource Input in Shipyard Manufacturing
Soonkyo Lee, Taesu Cheong, School of Industrial Management Engineering, Korea University, Seoul, South Korea
Seokhyun Chung, Industrial & Operations Engineering, University of Michigan, Ann Arbor, MI, USA

ID 185 Sustainability Issues in Sputtering Deposition Technology
F.M. Mwema, Department of Mechanical Engineering Science, University of Johannesburg, South Africa
E.T. Akinlabi, Department of Mechanical Engineering, Covenant University, Ota, Nigeria
O.P. Oladijo, Botswana International University of Science and technology, Palapye, Botswana

ID 050 New Tool for Friction Stir Processing
Harith Abdullah, Steel industries Company, Iraq

2:30 – 4:00, THURSDAY — Human Factors and Ergonomics — Algonquin 3

Session Chair: Alma Maria Jennifer A. Gutierrez, De La Salle University, Philippines

ID 164 Design and Development of a Convertible Stair-Ramp System
Jannel Lyn F. Domondon, Rajan Paul C. Garcia, Noriel A. Clavo, Maria Teresa B. Mendoza, Mary Anne C. Sevilla, Industrial Engineering Department, Technological Institute of the Philippines Manila

ID 018 Enhancement of Gaming Experience and Performance through an Ergonomically Designed Console Chair
Alma Maria Jennifer Gutierrez, Lorenzo Cadiz, Nathaniel Filoteo, Ivan Juan, Bryan Leopando, Industrial Engineering, De La Salle University, Philippines

ID 145 Identification and Analysis of Factors Influencing Safety Culture in Drilling Industry Using Strategic Options Development and Analysis Methodology
Hadi Shirouyehzad, Mazdak Khodadadi Karimvand, Department of Industrial Engineering, Najafabad Branch, Islamic Azad University, Isfahan, Iran
Reza Dabestani, Department of Management and Economics, Tarbiat Modares University, Tehran, Iran

ID 151 Product Design Development of Ergonomic Mop: ANOMALI (An Ergonomic Mop for Healthy Life)
Zakka Ugih Rizqi, Nurahlun Baet, Department of Industrial Engineering, Islamic University of Indonesia Yogyakarta, Indonesia

ID 017 Safety and Productivity Enhancement through Ergonomics Development (SPEED)
Alma Maria Jennifer A. Gutierrez, Rosemary R. Seva, Industrial Engineering Department, De La Salle University, Philippines

ID 516 Introduction to Improving Adaptive Snow-Sports through Engineering Design, Ergonomic Form and Function
Elizabeth O'Neill, Buffalo State College, NY, USA

2:30 – 4:00, THURSDAY **Lean Six Sigma and Supply Chain Competitions** **Algonquin 4**

Session Chair: Judging Committee Chair

LEAN SIX SIGMA COMPETITION

ID 039 Application of BPMN-based Workflow Tools for Six Sigma Process Maps
Alfred Wulff, Department of Management, Information, Technology, Jade University of Applied Sciences, Wilhelmshaven, Germany
Saso Krstovski, Lawrence Technological University, 21000 West Ten Mile Road, Southfield, MI

SUPPLY CHAIN COMPETITION

ID 464 Better Understanding the Impacts of Regulatory Environmental Policies on Inventory And Fleet Replacement
Carlos Otero, University of California Davis, California, United States

ID 435 Utilizing the Blockchain Technology as an Effective Means for Supply Chain Traceability
Chinedu Egbuonu, Concordia University, Montreal, Quebec, Canada

ID 480 Design and Development of the Trailers Optimal Allocation and Schedule Model in the Supply Chain System with Considering Cross-Dock with Stochastic Planning
Javad Khamisabadi, Ph.D student, Faculty of Management, Firuzkuh Branch, Islamic Azad University, Tehran, Iran
Mohammad Reza kabaranzad Ghadim, Associated Professor, Faculty of Management, Central Tehran Branch, Islamic Azad University, Tehran, Iran
Hasan Ali Aghajani Kasegar, Professor, Faculty of Management, Mazandaran University, Iran
Mohammad Mahdi Movahedi, Assistant professor, Faculty of Management, Firuzkuh Branch, Islamic Azad University, Tehran, Iran

4:00 – 4:30 pm – Networking Break

Session – Thursday (October 24): 4:30 – 6:00 pm

4:30 – 6:00, THURSDAY **Industry Solutions VIII: Industry 4.0** **MacDonald Room**

Session Chair: Walid Abdul-Kader, University of Windsor, Canada

4:30 pm – 4:50 pm (Thursday)
Jesusetemi Oluwafemi[1], Pule Kholopane[2] and Ifetayo Oluwafemi[3]
[1,2]Department of Quality and Operations Management, University of Johannesburg, DFC Campus, South Africa
[3]Postgraduate School of Engineering Management, University of Johannesburg, RSA

Esther T. Akinlabi
Department of Mechanical Engineering Science, University of Johannesburg, APK Campus, 2006, South Africa

ID 317 The Nexus between Finance and Agricultural Productivity in Nigerian's agricultural sector

4:50 pm – 5:10 pm (Thursday)
Maleho M and Telukdarie Arnesh
Post Graduate School of Engineering Management, University of Johannesburg, Auckland Park, 2092, South Africa

ID 073 Developing a framework for evaluation of a digital maintenance management system

5:10 pm – 5:30 pm (Thursday)
Dr. Munir Majdalawieh
Associate Professor and Head of the Information Systems and Technology Management Department, College of Technological Innovation
Provost Advisor on continuing Education and Outreach, Zayed University, Dubai, UAE

ID 122 Advancing Digital Transformation: Integrated Digital Transformation Framework for a Successful Deployment

5:30 pm – 5:50 pm (Thursday)
Hendrik Frölian, M.Sc. RWTH, M.Sc. Tsinghua
CPO and Co-founder of Solutions Ariv, Montreal, Canada

Possibilities for SMEs to profit from a scalable and interoperable Industry 4.0 platform

4:30 – 6:00, THURSDAY **Global Engineering Education VII** **Mackenzie Room**

Women in Industry and Academia (WIIA) Panel Session

Panel Chair **Pr. Loubna Benabbou** Management Sciences Department UQAR- Lévis Campus Lévis, QC, Canada	Panel Speaker I **Dr. Ilham Kissani** Assistant Professor of Engineering & Management Science School of Science & Engineering Al Akhawayn University, Ifrane, Morocco	Panel Speaker II **Prof. Soumaya Yacout** Professor Department of Industrial Engineering École Polytechnique de Montréal Montréal, Québec, Canada
Panel Speaker III **Dr. Samira Keivanpour** Assistant Professor Polytechnique Montréal, Canada	Panel Speaker IV **Isha Grewal**, MBA Finance, Project Mgmt. Key Accounts Driver, PwC Canada Marketing Director, Women Who Rock Toronto, Canada	

4:30 – 6:00, THURSDAY — Lean — Algonquin 1

Session Chair: Hatice Camgoz Akdag, Istanbul Technical University, Istanbul, Turkey

ID 058 Design of New Plant Layout Using Lean Tools by Eliminating Wastes in Material Flow Process
Sriram Srinivasan and Harita Zikre, Department of Mechanical Engineering, University of Windsor, Windsor, Canada

ID 074 Sustainability of Lean Manufacturing Principles in a Production System
Qawekazi Sinxoto, Telukdarie Arnesh, Post Graduate School of Engineering Management, University of Johannesburg, South Africa

ID 389 Application of Lean Manufacturing for Improving the Process at Blue sky Machining Corp.
Anvesh Rajak and Maganjot Singh Dhami, Department of Mechanical and Industrial Engineering, University of Windsor, Windsor, Canada

ID 128 Application of Lean Management Systems in Pathology Laboratory Work Process and Laboratory Environment
Hatice Camgoz Akdag, Hür Bersam Bolat, Ahmet Haşim Arslan, Ecem Karacakaya, Management Engineering Department, Istanbul Technical University, Istanbul, Turkey

4:30 – 6:00, THURSDAY — Data Analytics — Algonquin 2

Session Chair: Nnamdi Ogbuke, University of Central Lancashire, United Kingdom

ID 090 Data-driven Power Generation Design and Operation under Demand Uncertainty
Ali Elkamel, Khalifa University of Science and Technology, United Arab Emirates

ID 046 Implementation of Association Rule-Market Basket Analysis in Determining Product Bundling Strategy: Case Study of Retail Businesses in Indonesia
Zakka Ugih Rizqi, Department of Industrial Engineering, Islamic University of Indonesia, Yogyakarta, Indonesia

ID 056 Merging Logical Analysis of Data Models
Osama Elfar, École Polytechnique de Montréal, Canada

ID 137 New Class of Simple and Efficient Clustering Algorithms for Multiscale Mathematical Programming with Demand Data Applications
Falah Alhameli, Alberto Betancourt-Torcat, Mohammed Alkatheri, Ali Elkamel, University of Waterloo, Canada.
Ali Almansoori, Khalifa University, Abu Dhabi, UAE

ID 035 Big Data Analytics in Supply Chain Management: Ethical, Privacy and Security Challenges Posed to Business, Industries and Society
Nnamdi Ogbuke, University of Central Lancashire, United Kingdom

4:30 – 6:00, THURSDAY — Modeling and Simulation — Algonquin 3

Session Chair: Ujjwal Khanna, Concordia University Concordia, Montreal, QC, Canada

ID 181 A Lower Bound Analysis for the Flowshop Scheduling Problem with Makespan Minimization
Bruno de Sousa Alves, Electrical Engineering Department, Polytechnique de Montréal Montréal, Canada
Carlos Ernani Fries, Department of Production and Systems Engineering, Federal University of Santa Catarina, Florianópolis, SC, Brazil

ID 079 A Greedy Algorithm to Minimize Slots Needed for University Course Timetable
Ganapathy Lakshmikanthan, National Institute of Industrial Engineering (NITIE), India

ID 305 Job Rotation Model in Production Centers to Reduce Ergonomic Risks Due to Work
Amirsalar Malekahmadi, Isfahan University of Technology, Iran

ID 053 A Discrete Event Simulation logic for Semiconductor Production Planning and Control within Industry 4.0 Paradigm
Ahmed H. Sakr, Soumaya Yacout, Samuel Bassetto, Mathematics and Industrial Engineering Department École Polytechnique de Montréal Montréal, Canada

ID 082 Allocation of Natural Gas to Consumption Sectors through Differential Price Paths
Ali Elkamel, Khalifa University of Science and Technology, United Arab Emirates
Farzaneh Daneshzand, Michael Fowler, Department of Chemical Engineering, University of Waterloo, Waterloo, Ontario, Canada
Mohammad Reza Amin-Naseri, Industrial and Systems Engineering Faculty, Tarbiat Modares University, Tehran, Iran

ID 390 Finite-Element Modeling of Thermo-Mechanical Phenomena in Friction Stir Welding of AISI 4340 Steel
Olanipekun Ayorinde Tayo, Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa
Timothy O. Laseinde, Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa
Nthabiseng Maledi, School of chemical and Metallurgical Engineering, University of Witwatersrand, Johannesburg, South Africa
Madindwa Mashinini, Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa

4:30 – 6:00, THURSDAY — Simulation Competition — Algonquin 4

Session Chair: Judging Committee Chair

ID 424 Impact of Bus Rapid Transit Efficiency on Vehicle Traffic of a Brazilian City
Augusto Ghiraldi, Felippe K. Sousa Pereira, Henrique Ewbank de M. Vieira and Rodrigo Luiz Gigante, Industrial Engineering Department, Facens, Sorocaba, Brazil

ID 430 Simulation and Optimization of Manufacturing Systems
Kaustubh Kale and Ahad Ali, Lawrence Technological University, Michigan, USA

ID 440 Using of Optimal Simulation Modelling to Reduce Radiotherapy Cancer Waiting Time and Improve Survival
Malakeh Saberi, Concordia Institute for Information Systems Engineering (CIISE), Concordia University, Montreal, QC, Canada

ID 436 Cartesian Trajectory Based Control of Dobot Robot
Md Rasedul Islam, University of Wisconsin Milwaukee, United States

Senior Capstone Design Poster Competition

Chair: Dr. M. Shamsuzzaman, University of Sharjah, UAE

ID 023 Automatic Seed Sowing Machine
Dr. Khalid Abdullitife Ababtain, Eng. Muhammed Ajmal, Mechanical Engineering Department, Yanbu, Saudi Arabia

6:00 – 7:30 pm (Thursday) - Poster Session

ID 004 Addressing Energy Challenges and Climate Change in Africa under the Sustainable Development Goals Framework
Polycarpe Feussi, Innocents E Edoun, Charles Mbohwa, The University of Johannesburg, South Africa

ID 016 Quality Management in Construction Projects
Richard Hannis Ansah, Xueqing Zhang, Department of Civil and Environmental Engineering, Hong Kong University of Science and Technology

ID 019 Design and Developed of a Smart Elevator
Javier Cruz-Salgado, Research and Technology Development, Universidad Politécnica del Bicentenario, MEX

ID 048 Longitudinal Effects of Team-Based Training on Students' Peer Rating Quality
Siqing Wei, Daniel M. Ferguson, Matthew W. Ohland, Behzad Beigpourian, Chuhan Zhou, Department of Engineering Education, Purdue University West Lafayette, Indiana, USA

ID 050 New Tool for Friction Stir Processing
Harith Abdullah, Steel industries Company, Iraq

ID 083 Big Data and Machine Learning Based Approach to Gas Processing: A Case of Condensate Stabilization
Muhammad Rizwan, Mohammed Alkatheri, Falah Alhameli, Ali Elkamel, Ali Almansoori, Department of Chemical Engineering, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates

ID 168 Stator Teeth Pairing Design of Dual Radial Flux Permanent Magnet Generator for Cogging Torque Reduction
Jin-Hyung Yoo, Seon-Hwan Hwang and Tae-Uk Jung, Department of Electrical Engineering Kyungnam University Changwon, South Korea

ID 169 Flexible Operation of Polygeneration Energy Systems with Renewable Energy
Tuhin Poddar, Ali Elkamel, Peter L. Douglas, Department of Chemical Engineering, University of Waterloo, Waterloo, ON, Canada
Ali Almansoori, Department of Chemical Engineering, Khalifa University of Science and Technology, Abu Dhabi, UAE

ID 201 IoT (Internet of Things) Based Heart-Rate Observation System
Saman Shahid, Saima Zafar, Mansoor Imam, Muhammad Usman Chistee, Haris Ehsan Department of Sciences & Humanities and Department of Electrical Engineering, National University of Computer & Emerging Sciences (NUCES), FAST, Lahore Pakistan

ID 211 Self-Compacting High-Performance Concrete from Chemical & Mineral Admixtures
Shahid Ali, Saman Shahid, Bilal Ibrahim Dept. of Civil Engineering, National University of Computer & Emerging Sciences, FAST, Lahore Pakistan

ID 284 Entrepreneurial Aspiration among Office Technology and Management Students of Federal Polytechnic Kaura Namoda Zamfara State, Nigeria: The Contribution of Entrepreneurship Education and Social Networks
Maikudi Musawa, Universiti Tunn Hussein Onn Malaysia (UTHM), Malaysia

ID 302 Combination of Corncob, Cornhusk, and Kirinyuh (Eupatorium odoratum L.) Leaf Extract as Materials of Anti-Termite Paper
Sigit Trimayanto, Prestylia Ikke Kurnia Mayasari, Faraqanita Dwi Novianti, Dian Novita, Dept. of Chemistry, State University of Surabaya, Indonesia

ID 316 Review of Warehouse Performance in South African Manufacturing Sector
Tshepo Phuti Mabotja, Ebrahim Parker, Faculty of Business and Management Sciences, Cape Peninsula University of Technology, South Africa

ID 386 Implementation of Six Sigma in Service Industry in Cyrenaica, Libya: A Case Study
Salem Lakrash, Ahad Ali and Duane Shortt, A. Leon Linton Department of Mechanical Engineering, Lawrence Technological University, MI, USA

ID 391 Binary Alloy Simulation: A Phase-Field Model Study Using Semi Implicit Fourier Spectral Algorithm
Olanipekun Ayorinde Tayo, Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa
Timothy O. Laseinde, Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa
Nthabiseng Maledi, School of chemical and Metallurgical Engineering, University of Witwatersrand, Johannesburg, South Africa
Madindwa Mashinini, Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa

ID 392 The Impact of Machine Learning Algorithms on Benchmarking Process in Healthcare Service Delivery
Egbe-Etu Emmanuel Etu, Celestine Aguwa, and Leslie Monplaisir, Dept. of Industrial & Systems Engineering, Wayne State University, Detroit, USA
Suzan Arslanturk, Department of Computer Science, Wayne State University, Detroit, MI 48202, USA
Joseph Miller, Department of Emergency Medicine, Henry Ford Hospital, Detroit, MI 48202, USA

ID 403 A System-level Multi-center Quantitative Approach to Optimize Healthcare Providers' Screening Behavior for Improved Quality of Care
Lan Jiang, Systems Science and Industrial Engineering, State University of New York at Binghamton, Binghamton, NY 13905, USA
Melissa A. Sutherland, Decker School of Nursing, State University of New York at Binghamton, Binghamton, NY 13905, USA
Bing Si, Systems Science and Industrial Engineering, State University of New York at Binghamton, Binghamton, NY 13905, USA

ID 406 Towards Optimization by Matching of Response Surfaces: finding Windows of Maximal Similarity
Díaz Pacheco, Verónica, Acosta Cervantes, Mary C. and Cabrera-Ríos, Mauricio, The Applied Optimization Group at Mayagüez, Industrial Engineering Department, University of Puerto Rico, Mayagüez, PO Box 9043, Mayagüez, PR, 00681, USA

ID 407 The 2017-2018 Evaluation of the Operational Excellence Index Impact over the Private Sector Sustainability in Puerto Rico

Natali A. Camacho Cruz, Department of Industrial and Systems Engineering, Polytechnic University of Puerto Rico, San Juan, PR 00918, USA

ID 434 Neural Network and Internet of Things Implementation to aid Pedestrian Safety
Ujjwal Khanna and Anjali Awasthi, Concordia University Concordia Institute for Information Systems Engineering (CIISE), Montreal, QC, Canada

ID 437 Using Neural Network to Evaluate and Predict Student Success in CECS Graduate Program
Aishwary Pawar, University of Michigan Dearborn, United States

ID 438 Using Design of Experiments to Understand Oxidative Effects of Plasma Functionalization on the Surface Tension of Carbon Nanotubes
Mario Aquino, Yourri-Samuel Dessureault, Ayou Hao, and Richard Liang, Department of Industrial & Manufacturing Engineering, Florida A&M University – Florida State University College of Engineering, Tallahassee, FL 32310, USA

ID 441 Manufacturing and Characterization of Carbon Fiber and Carbon Nanotube Hybrid Composites
Samantha Bell, Claire Jolowsky, Ayou Hao, and Richard Liang, Department of Industrial & Manufacturing Engineering, Florida A&M University – Florida State University College of Engineering, Tallahassee, FL 32310, USA

ID 445 Decentralized Access Control Technique for Industrial Internet of Things
Kelechi Eze and Cajetan Akujuobi, The Center of Excellence for Communication Systems Technology Research (CECSTR), The SECURE Cybersecurity Center of Excellence, Electrical Engineering Department, Prairie View A&M University, Prairie View, TX, USA

ID 465 Efficiency as a Variable Intervening in Activity Based Management of Change Order and Economic Value Added to Improve Project Cost Performance on Building Construction
Budi Witjaksana, Department Civil Engineering, 17 Agustus 1945 Surabaya University, Surabaya, Indonesia

ID 466 Reasons Subak Concerving Irrigation Water Resources
Euis Dewi Yuliana, Putu Desiana Wulaning Ayu and Gede Angga Pradipta, University of Hindu Indonesia, Denpasar, Bali, Indonesia

ID 467 Sustaining Traditional Irrigation System through Ecotourism Development: Case of Subak of Sembung, Denpasar, Bali, Indonesia
Gede Sedana, Faculty of Agriculture, Dwijendra University, Indonesia

ID 468 Model Child's Inheritance Law towards Business Assets in Intermarriage, of an Autralian and Indonesian Citizen
I Dewa Ayu Maheswari Adiananda, Chintya Dewi R.S, Nikmah Mentari, Dyah Arinta Renaningtyas, Sri Eka Wulandari, I Gede Eggy Bintang Pratama, Nur Alfiani and Resi Puspitosari, Faculty of Law, Universitas Airlangga, Indonesia

ID 469 Developing DC Motor Control Module Using PLC as PLC Learning Media in Electrical Engineering UNESA, Indonesia
Puput Wanarti Rusimamto, Munoto, Muchlas Samani, Ekohariadi, Endryansyah and Dadang Suprayitno, Faculty of Engineering, Universitas Negeri Surabaya, Indonesia

ID 470 Utilization of Google Spreadsheets as Activity Information Media at the Official Site Alphabet Incubator
Qurotul Aini, Untung Rahardja, Indri Handayani and Marviola Hardini, Universitas Raharja, Tangerang, Indonesia

ID 472 The Cost of Occupational Safety and Health (OSH) in Construction Project
Risma Marleno and Hanie Teki Tjendani, Department of Civil Engineering, Construction Management Master Program, Universitas 17 Agustus 1945, Surabaya, Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 473 The effect of Turtle Blanket to the Baby's Behavior in Early Breastfeeding Initiation
Sudarmi, Supriatiningsih and Nora Isa Tri Novadela, Health Polythecnic Tanjungkarang, Midwifery Dept., Bandar Lampung, Lampung, Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 474 Implementation of Model Based Systems Engineering (MBSE) Tools to Model CubeSats Systems
Waleed Waris, A. James Clark School of Engineering, Systems Engineering Department, The Graduate School, University of Maryland, College Park, MD, USA

ID 442 Review of Optical Properties of Two-Dimensional Transition Metal Dichalcogenides
Andrew Voshell and Mukti M Rana, Department of Physics and Engineering and Optical Science and Center for Applied Research, Delaware State University, Dover, DE, USA

ID 489 Model of Teaching Style toward Crawl Swimming Result Study
Surya Adi Saputra, Higher School Of Teacher Training and Pedagogy Kusumanegara Jakarta, Indonesia
Abdul Sukur, Faculty of Sports Science, Universitas Negeri Jakarta, Indonesia
James Tangkudung and Firmansyah Dlis, Physical Education Post Graduate Program, Universitas Negeri Jakarta, Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 490 The Influence of Leadership on Academic Quality Assurance at the Private Nursing Vocational Schools
Susi Hartati, Departement of Education Management, Universitas Negeri Jakarta, Jl. Rawamangun Muka, RT.11/RW.14, Rawamangun, Pulo Gadung, Jakarta Timur, Jakarta 13220, Indonesia and Departement of Nursing, STIKes Mitra Keluarga, Bekasi Timur, Jawa Barat 17113, Indonesia
Mukhneri Mukhtar, Matin, Departement of Education Management, Universitas Negeri Jakarta, Jakarta Timur, Jakarta 13220, Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 491 The Government Expenditure Impact on the Private Investment, Economic Growth, and Poverty in Maluku Province
Tri Wahyuningsih, The Faculty of Economy, University of Iqra Buru, Namlea, Maluku, 97571, Indonesia
Mohammad Bugis, The Faculty of Economy and Business, Pattimura University, Ambon, Maluku, 92711, Indonesia
Abdul Talib Bon, The Faculty of Technology Management and Business, Universiti Tun Hussein, Malaysia

ID 492 The Effect Of Leg Muscle Power Flexsibility And Achivement Motivation On Long Jump Ability
Zihan Novita Sari, Moch. Asmawi, Achmad Sofyan Hanif, and James Tangkudung, State University of Jakarta, Department of Physical Education, Jalan Rawamangun Muka, Pulo Gadung, East Jakarta city, Special Capital Region of Jakarta 13220 Indonesia.
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 493 Model Teaching Style and Motor ability on Sport Science Student Achievement Learning Outcome Sepak Takraw
Zulkifli, Universitas Islam Riau, Jalan Kharuddin Nasution No 113, Pekanbaru, Riau 28284 Indonesia
Moch. Asmawi and Ahcmad Sofyan Hanif, Universitas Negeri Jakarta, Jalan Rawamangun Muka, Jakarta 13220 Indonesia
Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 494 Computer Guided Laparoscopic Surgery Training
Gage Driscoll, University of Arizona Honors College, United States

ID 496 The Implications of Uncertainty in the Results of Simulation Models
Anna Paula Galvão Scheidegger, Industrial and Systems Engineering Department, Texas A&M University, College Station, TX 77845, USA

ID 501 Using Design of Experiments to Understand Effects of Chemical and Plasma Functionalization on the Surface Tension of Carbon Nanotubes
Mario Aquino, Yourri-Samuel Dessureault, Gabriela Gomez, Ayou Hao, and Richard Liang, Department of Industrial & Manufacturing Engineering, Florida A&M University – Florida State University College of Engineering, Tallahassee, FL 32310, USA

ID 504 Computational Modeling Using Multi-omics to Extract Early Predictive Signatures of T-cells Quality
Odeh-Couvertier V[1], Dwarshuis N[2], Colonna M[3], Huang D[2], Edison A[3], Fernandez F, Roy K[2], Kotanchek T[4], and Torres-García W[1]
[1]Department of Industrial Engineering, University of Puerto Rico, Mayaguez, P.R
[2]Georgia Institute of Technology, Atlanta, GA
[3]University of Georgia, Athens, GA
[4]Evolved Analytics

ID 505 Short-range Electric Cars Used in Multi-Hour Travels
Douglas W.E. Ferrier, College of Technology, Indiana State University, Terre Haute, IN. USA

ID 506 An Approach to Optimize Performance of Low Power Devices in IoT-Based Smart Home Using RED Active Queue Management Model
Ekele A. Asonye and Sarhan M. Musa, Electrical and Computer Engineering Department, Prairie View A&M University, Texas, USA

ID 508 Dynamic Operations of Distributed Data Center Electricity Load for use as Distributed Energy Resource (DER)
David D Gower, Department of Systems Science and Industrial Engineering, Binghamton University, Binghamton, NY 13902, USA

ID 510 How to find effective systems engineers?
Niamat Ullah Ibne Hossain, Mississippi State University, USA

ID 517 Why Rapid Prototyping
Moses Taaboo, Central Connecticut State University, USA

ID 518 VEX Nuclear Waste Carrier: Carrying and Transporting Nuclear Canisters
August Harris, Southern University and A&M College, Baton Rouge, Louisiana, USA

ID 520 Modeling Renewable Energy
Nora Pamela Rubalcaba, Bachelor of Science of Industrial and Systems Engineering, The University of Texas at El Paso, El Paso, TX 79915 USA

ID 521: Statistical Analysis of the Drying Process at a Car Wash
Aisha Torres, Department of Industrial Engineering, Polytechnic University of Puerto Rico

October 25, 2019 (Friday)

Session: 8:00 – 9:30 am

8:00 – 9:30, FRIDAY **Industry Solutions IX** **MacDonald Room**

Session Chair: Dr. Ishwar Singh, Consultant at McMaster/Mohawk B.Tech, Toronto, Canada

8:00 – 8:20 (Friday)
Dr. Dan Centea
Associate Professor and Associate Director, Undergraduate, W Booth School of Engineering Practice and Technology
Associate Member, Department of Mechanical Engineering
McMaster University, Hamilton, Ontario, Canada

Dr. Ishwar Singh
Consultant at McMaster/Mohawk B.Tech, Toronto, Canada

Industry 4.0 Implementation at McMaster University

8:20 – 8:40 (Friday)
Aamirah Mohammed Ashraf
Department of Mechanical, Automotive and Materials Engineering
University of Windsor, Canada

Dr. Walid Abdul Kader
Professor, Department of Mechanical, Automotive and Materials Engineering
University of Windsor, Canada

ID 258 Integrating Blockchain in Nuclear Fuel Supply Chains for Transparency of Hazardous Materials Flow
Aamirah Ashraf and Walid Abdul Kader, University of Windsor, Canada

8:40 – 9:00 (Friday)
Tom Murad, Ph.D., P.Eng. F.E.C., SM.IEEE
Country Lead - Engineering & Academics
Siemens Canada Limited

Driving the Future towards Industrie 4.0 - Digital Enterprise

9:00 – 9:20 (Friday)
Dr. Ajay Jha
Operations Management Faculty, School of Business
University of Petroleum & Energy Studies (UPES), Dehradun, Uttarakhand, India

8:00 – 9:30, FRIDAY Masters Thesis and Doctoral Dissertation Competitions Mackenzie Room

Session Chair: Anil Kumar Agrawal, Indian Institute of Technology (BHU), VARANASI, INDIA

MASTERS THESIS COMPETITION

ID 257 Forecast Model for Return Quality in Reverse Logistics Networks
Aamirah Mohammed Ashraf and Walid Abdul Kader, Department of Mechanical, University of Windsor, Windsor, Canada

DOCTORAL DISSERTATION COMPETITION

ID 321 Capital Equipment as Upgradable Product-Service Systems: A value-adding alternative to traditional replacement strategy
Muztoba Ahmad Khan, West Virginia University, United States

ID 350 Developing a dynamic model for natural gas supply and demand system to optimize pricing and investment policie
Farzaneh Daneshzand, University of Waterloo, Canada

ID 229 Development of an Instrument to Assess the Performance of Systems Engineers
Niamat Ullah Ibne Hossain, Morteza Nagahi, Raed Jaradat, Department of Industrial and Systems Engineering, Mississippi State University, USA
Charles Keating, Department of Engineering Management and Systems Engineering, Old Dominion University, VA, USA

8:00 – 9:30, FRIDAY Undergraduate STEM Research Competition Algonquin 1

Session Chair: Judging Committee Chair

ID 361 Humans' Perceptions of Handwritten Digits Generated by a Generative Adversarial Network
Jia Lin Cheoh, Department of Computer Science, Research Center for Open Digital Innovation, Purdue University, West Lafayette, Indiana, USA
Sabine Brunswicker, Research Center for Open Digital Innovation, Purdue University, West Lafayette, Indiana, USA

ID 374 Production Systems Design: Time Series Approach to Forecasting
Demetri Blackwood, Tanashki Frater, Navardo Henry and Chelsea Wright, Department of Industrial Engineering, Kettering University, Flint, MI, USA

ID 488 Comparative Analysis in Sales Forecasting ARIMA and Neural Networks
Ghita Benboubker, Ilham Kissani and Asmae Mourhir, School of Science and Engineering, Al Akhawayn University, Ifran, Morocco

ID 503 Temperature Regulation of the Human Body using Thermoelectric Peltier Modules
Brandon Soundara, Department of Engineering Technology, Middle Tennessee State University, 1301 E Main St, Murfreesboro, TN 37132, USA

ID 507 WIP: How 3D Printing and CAD/CAM Design can Influence Students in Classes Outside of STEM; Inspiring Them to Pursue Careers in STEM
Fernando Monroy Faudoa, Univeristy of Texas, El Paso, United States

8:00 – 9:30, FRIDAY Manufacturing Algonquin 2

Session Chair: E.T. Akinlabi, University of Johannesburg, South Africa

ID 183 A Theoretical Assessment of Warehouse Performance in Manufacturing Industries
Nakedi Macdonald Magoro, Emmanuel Edoun Innocents, University of Johannesburg, South Africa

ID 118 A Variable Neighbourhood Search Algorithm for Scheduling of the Multi-Objective Flexible Manufacturing Systems
Seyed Sina Miri Nargesi, DepT. of Industrial Engineering, Faculty of Engineering, Sci. and Research Branch, Islamic Azad University, Tehran, Iran
Hamidreza Mozaffari Gilani, Department of Civil Engineering, Semnan branch, Islamic Azad University, Semnan, Iran
Seyyed Hassan Baghaipour, Department of Marketing, Manchester Business School, Manchester, UK
Elham Amiri, Department of Management, Central Tehran Branch, Islamic Azad University, Tehran, Iran
Hamed Olfati, Department of Electrical and Computer Engineering, University of Tehran, Tehran, Iran

ID 235 Analysis and Optimization of MRR in Powder-Mixed EDM of AISI 5160 Steel
Neeraj Sharma, Kapil Gupta, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, South Africa

ID 057 Automatic Welding Process: A Study Case of Soldering Machine
Sandro Breval Santiago, Department of Administration and Management, Federal University of Amazonas Manaus, Amazonas, Brazil
Eduardo Luiz de Oliveira Almeida Institute Calcomp of Techonology ICCT, Electrical Departament
Jonathan Oliveira Dias, Institute Calcomp of Techonology ICCT, Mechanical Departament

ID 038 Development of a Productivity Improvement Framework for the Caravan Industry: A South African Perspective
Ngwenya Andries Rakobela, Kgashane Stephen Nyakala, Thinandahva Thomas Munyai, Department of Operations Management, Tshwane University of Technology, South Africa
Michael Kweneojo Ayomoh, Department of Mechanical Engineering, University of Pretoria, South Africa

ID 186 Exploring the Effect of RF Power in Sputtering of Aluminum Thin films-A Microstructure Analysis
F.M. Mwema, E.T. Akinlabi, Department of Mechanical Engineering Science, University of Johannesburg, South Africa
O.P. Oladijo, Dept. of Chemical, Materials and Metallurgical Engineering, Botswana International University of Science and technology, Botswana

8:00 – 9:30, FRIDAY **Modeling and Simulation** **Algonquin 3**

Session Chair: Nabeel Mandahawi, Humber Institute of Technology and Advanced Learning, Toronto, Canada

ID 309 Kinematics and Jacobian Analysis of a Three DOF Sufficiently Actuated Large Scale Cable-Driven Robot with Insufficient actuated structure
Kambiz Ghaemi Osgouie, Assal Haqiqat Pars, Mechanical Engineering Department, Caspian Faculty of Engineering, College of Engineering, University of Tehran, Iran
Ali ElKamel, Azadeh Maroufmashat, Department of Chemical Engineering, University of Waterloo, Waterloo, Canada

ID 063 Project-based learning in Systems Modeling and Analysis: Electro-Mechanical System (EMS)
Sarder E. Sadique, Ph.D., Teesdale Place, Toronto ON, M1L1K9, Canada

ID 147 Proposing a Conceptual Model for Critical Success Factors Influencing Organizations' Safety by Interpretive Structural Modelling
Hadi Shirouyehzad, Mazdak Khodadadi Karimvand, Department of Industrial Engineering, Najafabad Branch, Islamic Azad University, Isfahan, Iran
Reza Dabestani, Department of Management and Economics, Tarbiat Modares University, Tehran, Iran

ID 260 Successful Reservoir Management for Thermal EOR Implementation for Sudanese Oil Fields- FNE
Husham A. Elbaloula, and Tagwa A. Musa, College of Petroleum Engineering & Technology, Sudan University of Science and Technology, Khartoum, Sudan

ID 486 Capacity Planning and Optimization for a National Painting Factory using Simulation Modeling and Lean Manufacturing Tools
Nabeel Mandahawi, Nedal Ismail and Omar Wahdan, Department of Logistics and Supply Chain Management, Humber Institute of Technology and Advanced Learning, Toronto, Canada

8:00 – 9:30, FRIDAY **Lean and Project Management** **Algonquin 4**

Session Chair: Mohammad Anwar Rahman, Central Connecticut State University, New Britain, CT, USA

ID 150 Establishment of Magnetic Levitation for Flood Prevention in Jakarta with Project Management Approach
Zakka Ugih Rizqi, Bella Aziz Dewanti Putri, M Iqbal Sabit and Shelly Elvina Salsabila, Department of Industrial Engineering, Islamic University of Indonesia, Yogyakarta, Indonesia

ID 402 Exponential Smoothing with Additional Seasonal Factor to Forecast Peak Season Demand
Mohammad Anwar Rahman, School of Engineering, Science & Technology, Central Connecticut State University, New Britain, CT 06053 USA

ID 405 Cycle Time Reduction in the Plastic Fuel Tanks Production Line: A Lean Manufacturing Case Study at Kautex Corporation
Faranak Sadeghitabar and Sardar Asif Khan, Department of Mechanical, Automotive and Material Engineering, University of Windsor, Canada

ID 446 Tax Avoidance is Seen from the Perspective of Corporate Social Responsibility, Capital Intensity and Inventory Intensity in Developing
Ilham Arifidianto, Nurul Aini, Rudi Harianto, Putri Zanufa Sari, Rony Wardhana, Frenky Yusuf, AND Anik Mubiatiningrum, Faculty Economy and Business, Narotama University, Surabaya, Indonesia
Abdul Talib Bin Bon, Fakulti Pengurusan Teknologi dan Perniagaan, Universiti Tun Hussein Onn Malaysia (UTHM), Johor, Malaysia

Friday 8:00 am – 9:30 am and 11:00 am – 1:00 pm

High School and Middle School STEM Posters Competition

Chair: Professor Don Reimer, Lawrence Technological University, MI, USA

ID 409 Development of a VR based Game Environment for Wrist and Finger Rehabilitation
Aditya Pillai, Upper School, University School of Milwaukee, Milwaukee, WI 53217, USA
Asif Al Zubayer Swapnil and Mohammad Habibur Rahman, Mechanical Engineering Department, University of Wisconsin-Milwaukee, USA

9:40 – 11:00 am – Friday Morning Keynote I & II

9:40 – 10:20 am - **Friday Morning Keynote I**

Todd Deaville
Director of Engineering and R&D
Magna International Inc.
Toronto, Canada

10:20 – 11:00 am - **Friday Morning Keynote II**

Dr. Samir Elhedhli
Professor, Dept. of Management Sciences
Faculty of Engineering
University of Waterloo, Canada

11:00 – 11:30 – Networking Break

Session – Friday (October 25): 11:30 am – 1:00 pm

11:30 – 1:00, FRIDAY **Industry Solutions X: Industry 4.0** **MacDonald Room**

Session Chair: Sandro Breval Santiago, Faculty of Social Studies, Federal University of Amazonas, Amazonas, Brazil

11:30 – 11:50 (Friday)
Dr. Loubna BENABBOU
Department of Management Sciences
UQAR, Levis Campus, Québec, Canada

Towards a Data-Driven Continuous Improvement Approach to Achieve Operational Excellence

11:50 – 12:10 (Friday)
Arun Raman, Richard Sowers and Ramavarapu S. Sreenivas
Department of Industrial and Enterprise Systems Engineering
University of Illinois at Urbana-Champaign, Urbana, IL 61801, USA

ID 203 An Affordable and Portable Technology for Real-Time Scheduling of Appliances in Smart Homes
A. Raman, R. Sowers, R. S. Sreenivas, Department of Industrial and Enterprise Systems Engineering, University of Illinois at Urbana-Champaign Urbana, IL 61801, USA

12:10 – 12:30 (Friday)
Jesusetemi Oluwafemi[1], Pule Kholopane[2] and Ifetayo Oluwafemi[3]
[1,2]Department of Quality and Operations Management, University of Johannesburg, DFC Campus, South Africa
[3]Postgraduate School of Engineering Management, University of Johannesburg, RSA

Esther T. Akinlabi
Department of Mechanical Engineering Science,
University of Johannesburg, APK Campus, 2006, South Africa

ID 320 An Application of Industry 4.0 in Agriculture in Nigeria
Jesusetemi Oluwafemi, Pule Kholopane, Ifetayo Oluwafemi, Department of Quality and Operations Management, University of Johannesburg, RSA, DFC Campus, South Africa, Postgraduate School of Engineering Management, University of Johannesburg, RSA
Esther T. Akinlabi, Department of Mechanical Engineering Science, University of Johannesburg, RSA, APK Campus, 2006, South Africa

12:30 – 12:50 (Friday)
Americo Azevedo
Faculty of Engineering
University of Porto – INESC TEC - CESE
Porto, Portugal

Sandro Breval Santiago
Faculty of Social Studies
Federal University of Amazonas, Amazonas, Brazil

ID 059 Design of an Assessment Industry 4.0 Maturity Model: an application to Manufacturing Company
Americo Azevedo, Faculty of Engineering, University of Porto – INESC TEC – CESE, Porto, Portugal
Sandro Breval Santiago, Faculty of Social Studies, Federal University of Amazonas, Amazonas, Brazil

KEYNOTE - Algonquin Rooms 1-4

11:30 am – 12:00 pm, FRIDAY KEYNOTE

Birsen Donmez, PhD
Associate Professor, Department of Mechanical and Industrial Engineering
Canada Research Chair in Human Factors and Transportation
University of Toronto, Canada

12:00 pm – 12:30 pm, FRIDAY KEYNOTE

Cheryl Thompson
Founder and CEO of CADIA
Center for Automotive Diversity, Inclusion & Advancement
Detroit, Michigan

1:00 – 2:30 pm – Friday Networking Lunch Buffet

Friday Lunch Keynote

Mr. Lee Childers
Chief Executive Officer
Tooling Tech Group
Macomb, Michigan, USA

Session – Friday (October 25) – 2:30 – 4:00 pm

2:30 – 4:00, FRIDAY **Industry Solutions XI** **MacDonald Room**

Session Chair: Tom Seubert, Larsen & Toubro Infotech Ltd., Southfield Information Technology Center, Southfield, Michigan, USA

2:30 pm – 2:50 pm (Friday)
Tom Seubert
MES Project Manager
American Axle Manufacturing Account
Larsen & Toubro Infotech Ltd.
Southfield Information Technology Center, Southfield, Michigan, USA

Manufacturing Execution System (MES) Current Understanding & Success Factors

2:50 pm – 3:10 pm (Friday)
Dr. Anjali Awasthi
Associate Professor, Concordia Institute for Information Systems Engineering
Faculty of Engineering and Computer Science
Concordia University, Montreal, Canada
Education Chair, Canadian Operational Research Society
Past Member of Executive Board and Student Counselor - ASQ 401

3:10 pm – 3:30 pm (Friday)
Sardar Asif Khan, P. Eng. PMP
Manager World Class Logistics
FCA Fiat Chrysler Automobiles, Detroit, Michigan

3:30 pm – 3:50 pm (Friday)
Abdellah MENOU
Director, Mohammed VI International Academy of Civil Aviation (AIAC)
Casablanca Prefecture, Morocco

3:50 pm – 4:10 pm (Friday)
Arifusalam Shaikh, PhD, CSCP
CEO & Co-Founder, Creatros Technologies Inc.
St. John's, Newfoundland and Labrador, Canada

2:30 – 4:00, FRIDAY **Mackenzie Room**

Workshop on Entrepreneurship and Innovation

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

2:30 – 4:00, FRIDAY **Human Factors and Ergonomics** **Algonquin 1**

Session Chair: Juan José Encinas, Universidad Ricardo Palma, Chorrillos, Lima, Peru

ID 021 The Impact of Effective Work Design and Ergonomics on Employee's Productivity in Higher Education Institutions in Pretoria East, Gauteng
Thobile Yvonne Bhila, E I Edoun, C Mbohwa, Dept. of Quality and Operations Management, University of Johannesburg, Auckland Park, South Africa

ID 022 The Impact of Greening Practices and Employee Productivity in the Restaurant Business in Johannesburg North, South Africa
Mrs Thobile Yvonne Bhila, Dr E I Edoun, Professor C Mbohwa, Department of Quality and Operations Management, University of Johannesburg, Auckland Park, South Africa

ID 143 Toward a Socio-Cognitive Engineering Readiness Level (SERL) to Estimate the Maturity of a Multi-Agent's Collaborative System
Cabour Garrick, Samuel Bassetto, Élise Ledoux, Department of Physical Activity Sciences, Université du Quebec a Montreal, Montreal, Canada

ID 199 Usability Testing on Internet of Things-based Smart Gym Machine with All in One Concept Using Nielsen's Heuristics
Zakka Ugih Rizqi, Department of Industrial Engineering, Islamic University of Indonesia Yogyakarta, Indonesia

ID 439 Design of an Autonomous Electric Vehicle for Assistance in the Movement of People with Visual Disabilities Using Vision Algorithms and Artificial Intelligence
Juan José Encinas, Universidad Ricardo Palma, Chorrillos, Lima, Peru

ID 487 Empirical Evaluation of Smart Phones Data Entry Using Four Different Keyboards
Nosaiba Dar Mousa, Systems Science and Industrial Engineering Department, State University of New York at Binghamton, Binghamton, USA
Nabeel Mandahawi, Department of Logistics and Supply Chain Management, Humber Institute of Technology and Advanced Learning, Toronto, Canada

2:30 – 4:00, FRIDAY Supply Chain and Logistics Algonquin 2

Session Chair: Biswajit Sarkar, Yonsei University, Korea

ID 346 Zack Algorithm: A Heuristic Approach to Solve Transportation Problem
Zakka Ugih Rizqi, Department of Industrial Engineering, Islamic University of Indonesia, Yogyakarta, Indonesia

ID 358 Supply chain optimization with Genetic Algorithm focusing on right supplier selection at real time in apparel manufacturing
Shibbir Ahmad, SUST, Bangladesh

ID 357 Impact of High Speed Railways in Regional Economy: A Regression Analysis
Sundaravalli Narayanaswami, Indian Institute of Management Ahmedabad, India

ID 377 Maintenance of a Highly Perishable Lifesaving Product under a Healthcare Supply Chain Management
Biswajit Sarkar[1], Jihed Jemai[2], and Mitali Sarkar[1]
[1]Department of Industrial Engineering, Yonsei University, 50 Yonsei-ro, Sinchon-dong, Seodaemun-gu, Seoul 03722, Korea
[2]Department of Industrial Engineering, Hanyang University, Seoul 04763, Korea

ID 481 Review of Affective Factors on Performance Measurement in Supply Chain Management System (Case Study: Iran Khodro Co, Iran)
Javad Navaei, Department of Industrial Management, Faculty of Management, North Tehran Branch, Islamic Azad University, Tehran, Iran
Mohammad Reza Kabaranzad Ghadim, Department of Industrial Management, Central Tehran Branch, Islamic Azad University, Tehran, Iran
Javad Khamisabadi, Islamic Azad University, Tehran, Iran and Founder & CEO of World Academy of Science and Technology, Erzurum, Turkey

2:30 – 4:00, FRIDAY Sustainable Manufacturing Algonquin 3

Session Chair: Kapil Gupta, University of Johannesburg, Johannesburg, Republic of South Africa

ID 141 Fuzzy AHP-based Study of Barriers to the Implementation of Cleaner Production in Textile Industry
Farzana Islam, Ahmed Shoyeb Raihan, Bangladesh University of Engineering & Technology, Dhaka, Bangladesh

ID 233 Analysis and Optimization of Surface Roughness while Machining SS304 using Green Lubricant
Neeraj Sharma, Kapil Gupta, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, South Africa

ID 234 Tool Texturing and Machinability of Nickel-based Superalloys- A Review
Kapil Gupta, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, Republic of South Africa

ID 433 Prioritizing the Key Factors on Performance Measurement System (PMS) in Automotive Industry (Case Study: TONDAR 90 Deputy, Iran Khodro Company, Tehran, Iran)
Javad khamisabadi, Islamic Azad University, Tehran, Iran

ID 232 Developments in Conventional Machining for Sustainability-A State of Art Review
Kapil Gupta, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, Republic of South Africa

2:30 – 4:00, FRIDAY Energy Algonquin 4

Session Chair: Lingyi Gu, University of Waterloo, Ontario, Canada

ID 304 A Study on Carbon Footprint
Omoniyi Durojaye, Timothy Laseinde, Ifetayo Oluwafemi, University of Johannesburg, RSA, South Africa

ID 138 Allocation of Hydrogen Produced via Power-to-Gas Technology to Various Power-to-Gas Pathways
Suaad S. Al-Zakwani, Azadeh Maroufmashat, Michael Fowler, Ali Elkamel, Department of Chemical Engineering, University of Waterloo, 200 University Avenue West, Waterloo, Ontario N2L 3G1, Canada
Ali Elkamel, Department of Chemical Engineering, Khalifa University, Abu Dhabi, UAE

ID 167 An Optimization Strategy for Managing Surplus Electricity through P2G Pathways
Lingyi Gu, Jeeyoung Kim, Joohyung Ko, Azadeh Maroufmashat, Michael Fowler, Ali Elkamel, Department of Chemical Engineering, University of Waterloo, 200 University Avenue West, Waterloo, Ontario, Canada

ID 303 Carbon Markets: A consideration for Africa
Omoniyi Durojaye, Timothy Laseind, Ifetayo Oluwafemi, Postgraduate School of Engineering Management, University of Johannesburg, South Africa

ID 301 Optimal Microgrid Sizing Incorporating Machine Learning Forecasting
Saheed Lekan Gbadamosi, Nnamdi I. Nwulu, Department of Electrical and Electronic Engineering, University of Johannesburg, South Africa

ID 495 Threshold Based Control Policy for Energy Storage Operations with Demand Response and Renewable Energy
Awnalisa Walker, Binghamton University, NY, United States

4:00 – 4:30 pm – Networking Break

Session – Friday (October 25) – 4:30 – 6:00 pm

4:30 – 6:00, FRIDAY **Industry Solutions XII** **MacDonald Room**

Panel Session on Industry 4.0 (Status and Talent Pipeline)

Panel Chair **David Pistrui, Ph.D.** Industry Liaison and Director, Graduate Recruiting Clinical Professor of Engineering College of Engineering & Science University of Detroit Mercy, Detroit, Michigan, USA	Panel Speaker I **Ahad Ali, Ph.D.** Associate Professor Director of Industrial Engineering Lawrence Technological University, Southfield, Michigan, MI 48075, USA	Panel Speaker II **Tom Murad, Ph.D., P.Eng. F.E.C., SM.IEEE** Country Lead - Engineering & Academics Siemens Canada Limited
Panel Speaker III **Dr. Ishwar Singh** Consultant at McMaster/Mohawk B.Tech Toronto, Canada	Panel Speaker IV **Tom Gaasenbeek** President & CEO Nexas Networks Inc. Hamilton, Ontario, Canada	Panel Speaker V **Dr. Darrell Kleinke** Professor of Mechanical Engineering Director of Professional Engineering Programs University of Detroit Mercy, Detroit, MI, USA

4:30 – 6:00, FRIDAY **Case Studies** **Algonquin 1**

Session Chair: Javier Sanjuan de Caro, University of Wisconsin Milwaukee, USA

ID 348 The Limited use of Information Technology on Services and Learning at Iqra Buru University
M Chairul Basrun Umanailo, Department of Agricultural and Forestry, University of Iqra Buru, Namlea, 97 571, Indonesia

ID 379 An Overview of Design Considerations for 3-wheel Vehicle Safety Improvement, considering Supplementary Restraint Systems industrial revolution
Opeyeolu Timothy Laseinde and Rosine, Mouchou Tchamdjeu, Mechanical & Industrial Engineering Dept., University of Johannesburg, DFC campus, Johannesburg, South Africa

ID 388 Optimization of a Parallel Robot 2RRR, Based on Metaheuristic Optimization Using Genetic Algorithms, Evaluating the Global Performance Index System for Kinematic.
Javier Sanjuan de Caro and Mohammad Habibur Rahman, Department of Mechanical Engineering, University of Wisconsin Milwaukee, USA
Elias Muñoz Montenegro and Miguel Padilla Ramirez, Department of Mechanical Engineering, Universidad del Norte, Barranquilla, Colombia

ID 350 Public Relations Management Strategy through Management by Objective (MBO) of PT Kereta Api Operational Area 7 Madiun Indonesia Tulungagung Station
M Chairul Basrun Umanailo, Department of Agricultural and Forestry, University of Iqra Buru, Namlea, 97571, Indonesia
Andiwi Meifilina, Universitas Islam Balitar, Indonesia

ID 502 Managing a green building architecture for sustainable energy consumption by system approach
Fatima Sadat Ghaderi, School of Architecture, College of Fine arts, University of Tehran
S. F. Ghaderi, School of Industrial Engineering, College of Engineering, University of Tehran

4:30 – 6:00, FRIDAY **Decision Sciences** **Algonquin 2**

Session Chair: Asif Khan, FCA, Detroit, USA

ID 300 Drivers for Adoption of Automation and Robotics in the Construction Industry
Ayodeji Oke, Clinton Aigbavboa, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa
Olayinka Omole, Department of Quantity Surveying, Federal University of Technology, Akure, Ondo State, Nigeria

ID 006 The Nigerian Telecom Framework; Examining the Nigerian Communications Commission (Ncc) Policy Framework for The Information and Communications /Telecoms Industry
Nsikan Nkordeh, Covenant University, Nigeria

ID 359 The Analysis of Pros and Norms of Outsourcing Logistics Operational Activities in the Construction Industry in South Africa
Xhanti Dyonase, Department of Quality and Operations Management, University of Johannesburg, South Africa

ID 375 Overall Equipment Effectiveness Optimisation for a Reserves Constrained Underground Coal Mine in South Africa
Moeketsi Maimela, Department of Engineering and the Build Environment, University of Johannesburg, South Africa

ID 419 Benchmarking Sustainability Performance of Organizations Using a Multicriteria Approach with Application to Canadian Market
Abbas Tavassoli, Concordia University (Montreal-Quebec), Canada

ID 509 Locating using clustering and capabilities of GIS (case study: Bank)
Sara Aryaee, Management Department, University of Tehran, Tehran, Iran

4:30 – 6:00, FRIDAY **Information Systems and e-Business** **Algonquin 3**

Session Chair: Loubna Benabbou, Université du Québec à Rimouski (UQAR) Campus de Lévis, Québec, Canada

ID 003 Use of Watermelon Seeds in Water Treatment
M. M. Manyuchi, C. Mbohwa, E. Muzenda, University of Johannesburg, South Africa
T. Chikomo, Department of Chemical and Process Systems Engineering, Harare Institute of Technology, Zimbabwe

ID 005 Cloud Computing Technolgy: Advantages, Challenges and Security Issues
Nsikan Nkordeh, Covenant University, Nigeria

ID 189 The Effect Of Technological Innovations On Entreprise Resource Planning (Erp) Systems: A Case Study Of Sage Erp
E. I. Edoun, G. Bakam Fotso, University of Johannesburg, South Africa

ID 404 Gap Analysis of Indonesian State-Owned Bank Internet Banking Website
Mahir Pradana, Telkom University, Jalan Terusan Buah Batu, Bandung, 40257, Indonesia
Wahyuddin S., AMIK Lamappapoleonro, Lalabata Rilau, Lalabata, Soppeng, 90812, Indonesia
Syarifuddin Syarifuddin, Telkom University, Jalan Terusan Buah Batu, Bandung, 40257, Indonesia
Adrianza Putra, Hasanuddin University, Jalan Perintis Kemerdekaan KM 10, Makassar, 90245, Indonesia

ID 236 A Systematic Literature Review of Digital Transformation
Mohamed-Iliasse Mahraz, Abdelaziz Berrado, Dépt. Génie industriel, Ecole Mohammadia d'Ingénieurs, Mohammed V University of Rabat, Morocco
Loubna Benabbou, Département Sciences de la Gestion, Université du Québec à Rimouski (UQAR) Campus de Lévis, Québec, Canada

4:30 – 6:00, FRIDAY **Reliability and Maintenance** **Algonquin 4**

Session Chair: Mohammed A. Hajeeh, Techno-Economics Division, Kuwait Institute for Scientific Research, Kuwait

ID 044 Optimal Preventive Maintenance Strategy Using Reinforcement Learning
Mina Mikhail, Soumaya Yacout, Mohamed-Salah Ouali, Department of Mathematics and Industrial Engineering, Polytechnique Montréal, Canada

ID 042 Productive Maintenance 's Autonomous Maintenance in Achieving Effectiveness: Case Study
Ignatio Madanhire, Kumbi Mugwindiri, Tawanda Mutenhabundo, Department of Mechanical Engineering, University of Zimbabwe, Mount Pleasant, Harare, Zimbabwe
Charles Mbohwa, Department of Quality Management and Operations Management, University of Johannesburg, Johannesburg, South Africa.

ID 015 Real Time Car Engine Condition Monitoring by Using Instantaneous Angular Speed Analysis (IAS)
Dr. Abdullrhman Sait, Jamal Alfifi Mechanical Engineering Technology Department Yanbu Industrial College Yanbu, Kingdom of Saudi Arabia

ID 047 Reverse Osmosis Plants Failure Analysis
Mohammed A. Hajeeh, Techno-Economics Division, Kuwait Institute for Scientific Research, Kuwait

ID 515 Process Improvement in a Plastic Manufacturing Industry using Six Sigma Tools
Kaustubh Kale, A. Leon Linton Department of Mechanical Engineering, Lawrence Technological University, Southfield, MI 48075, USA

7:00 pm – 10:00 pm (Friday)

CONFERECE AWARD DINNER

Awards Keynotes

Dr. Devashis Mitra
Dean, Faculty of Business Administration
University of New Brunswick, Fredericton, Canada

Dr. Abdur Rahim
Professor, Faculty of Business Administration
University of New Brunswick, Fredericton, Canada

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- Eastern Michigan University, USA
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- Lawrence Technological University, Michigan, USA
- Prince Sultan University, Riyadh, Saudi Arabia
- Univeristy of Derby, UK
- Universitas Sebelas Maret (UNS), Surakarta, Indonesia
- Universitas Sebelas Maret, Surakarta, Indonesia
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15th IEOM Global Engineering Education
DISTINGUISHED SPEAKERS
Wednesday (October 23, 2019)

Session I: **Global Engineering Education**
8:00 am – 9:30 am (Wednesday, October 23) - Mackenzie Room
Session Chair: Daniel M Ferguson, Purdue University, West Lafayette, IN 47907, USA

8:00 – 8:20 (Wednesday)

Dr. Kapil Gupta
Associate Professor, Department of Mechanical and Industrial Engineering Technology
University of Johannesburg, Johannesburg, South Africa

Kapil Gupta is working as Associate Professor in the Dept. of Mechanical and Industrial Engineering Technology at the University of Johannesburg. He obtained Ph.D. in mechanical engineering with specialization in Advanced Manufacturing from Indian Institute of Technology Indore, India in 2014. Advanced machining processes, sustainable manufacturing, green machining, precision engineering and gear technology are the areas of his interest. He has authored several SCI/ISI Journal and International Conference articles. He also authored and edited 10 international books on hybrid machining, advanced gear manufacturing, micro and precision manufacturing, and sustainable manufacturing with the renowned international publishers. He has also successfully guest edited special issues of a Scopus indexed journals and he is currently editing a series of handbooks on Advanced Manufacturing as a series editor. He is a recognized reviewer of many international journals and in the advisor/technical committees of international conferences. He has also delivered invited speeches in international conferences and symposiums, and seminar talks at international universities. Kapil Gupta is a NRF [National Research Foundation] rated Researcher in South Africa. Currently, he is supervising 8 Masters and 4 Doctorate students who are busy conducting research in advanced manufacturing and industrial engineering fields. He is also conducting research in teaching & learning in higher education (HE) scenario along with doing his PG Diploma in higher education. He is working on implementation of innovative teaching techniques for the enhanced learning of engineering students. Recently, he also developed a manufacturing engineering virtual lab.

ID 279 A Project Based Learning Tool for Industry 4.0 Manufacturing Engineering Education
Kapil Gupta, Doctor Mukhawana and Madindwa Mashinini, University of Johannesburg**,** Johannesburg, South Africa

8:20 – 8:40 (Wednesday)

Dr. Fouzia Baki
Mechanical, Automotive and Material Engineering (MAME)
University of Windsor, Windsor, ON N9E 4C4, Canada

Fouzia Baki is an Assistant Professor in Industrial Engineering in the Department of Mechanical, Automotive, and Materials Engineering at the University of Windsor. Fouzia is a professional engineer in Ontario. She has been engaged in pedagogical research since 2007 with a focus on finding tools and techniques to engage students in large quantitative classes. Fouzia designs courses with meaningful and experiential learning components.

ID 049 Assessing Foreign Engineering Graduate Students' Understanding of Sustainable Development - A Survey
Fouzia Baki, Mechanical, Automotive and Material Engineering (MAME)**,** University of Windsor**,** Windsor, Canada

8:40 – 9:00 (Wednesday)

Behzad Beigpourian
Department of Engineering Education
Purdue University, West Lafayette, IN 47907, USA

Behzad Beigpourian is a Ph.D. student and Research Assistant in Engineering Education at Purdue University. He earned his master's in Structural Engineering from Shahid Chamran University in Iran, and his bachelor's in Civil Technical Teacher from Shahid Rajaee Teacher Training University in Iran, Tehran. He has been official Technical Teacher at Ministry of Education in Iran from 2007 to 2018, and received many certificate in education such as Educational Planning, Developing Research Report, and Understanding School Culture. During these years, he has taught construction courses in several technical schools. Mr. Beigpourian currently works in the CATME project, which is NSF funding project, on optimizing teamwork skills and assessing the quality of Peer Evaluations.

Dr. Daniel M Ferguson
Department of Engineering Education
Purdue University, West Lafayette, IN 47907, USA

Daniel M. Ferguson is CATME Managing Director and the recipient of several NSF awards for research in engineering education and a research associate at Purdue University. Prior to coming to Purdue he was Assistant Professor of Entrepreneurship at Ohio Northern University. Before assuming that position he was Associate Director of the Inter-Professional Studies Program [IPRO] and Senior Lecturer at Illinois Institute of Technology and involved in research in service learning, assessment processes and interventions aimed at improving learning objective attainment. Prior to his University assignments he was the Founder and CEO of The EDI Group, Ltd. and The EDI Group Canada, Ltd, independent professional services companies specializing in B2B electronic commerce and electronic data interchange. The EDI Group companies conducted syndicated market research, offered educational seminars and conferences and published The Journal of Electronic Commerce. He was also a Vice President at the First National Bank of Chicago [now J.P. Morgan Chase], where he founded and managed the bank's market leading professional Cash Management Consulting Group, initiated

the bank's non-credit service product management organization and profit center profitability programs and was instrumental in the breakthrough EDI/EFT payment system implemented by General Motors. Dr. Ferguson is a graduate of Notre Dame, Stanford and Purdue Universities, a special edition editor of the Journal of Engineering Entrepreneurship and a member of Tau Beta Pi.

Dr. Matthew W Ohland
Department of Engineering Education
Purdue University
West Lafayette, IN 47907, USA

Matthew W. Ohland is Professor of Engineering Education at Purdue University. He has degrees from Swarthmore College, Rensselaer Polytechnic Institute, and the University of Florida. His research on the longitudinal study of engineering students, team assignment, peer evaluation, and active and collaborative teaching methods has been supported by the National Science Foundation and the Sloan Foundation and his team received Best Paper awards from the Journal of Engineering Education in 2008 and 2011 and from the IEEE Transactions on Education in 2011 and 2015. Dr. Ohland is an ABET Program Evaluator for ASEE. He was the 2002–2006 President of Tau Beta Pi and is a Fellow of the ASEE, IEEE, and AAAS.

ID 124 Cohesiveness in Engineering Students Teams: Effect of Gender, Race, Year of Study, GPA, Previous Course Grade and Some Prerequisite Knowledge
Behzad Beigpourian, Daniel M Ferguson, Matthew W Ohland and Siqing Wei, Department of Engineering Education, Purdue University, USA

Session II: **Global Engineering Education**

2:30 pm – 4:00 pm (Wednesday, October 23) - Mackenzie Room
Session Chair: Ammar Aamer, Sampoerna University, Jakarta, Indonesia

2:30 – 2:50 (Wednesday)

Dr. Ammar Aamer
Dean, Faculty of Engineering and Technology
Sampoerna University, Jakarta, Indonesia

Ammar Aamer is the Dean of the Faculty of Engineering and Technology at Sampoerna University in Jakarta, Indonesia. He earned B.S., M.S., and Ph.D. in Industrial Engineering from The University of Tennessee, USA. Dr. Aamer is an experienced professional with more than 21 years of experience. He provided consulting services to more than 30 international companies in the areas of Manufacturing Systems, Projects Evaluation & Monitoring, Project Management, Supply Chain Management, Facilities Design and Layout, Strategic Evaluation and Gap Analysis, Process and Quality Improvement, Capacity Analysis, and Simulation Modelling. Dr. Aamer delivered and designed several Training and Capacity Building courses in the areas of: Operations Management, Total Quality Management, Project Management, Entrepreneurship, Feasibility studies, Monitoring and Evaluation, Six Sigma, Statistical tools, Lean Enterprise Systems, Capacity Analysis, and Simulation. His research interests include Lean Manufacturing, Supply Chain Management, Simulation, and Quality.

ID 271 Industrial Engineering Students' Perceptions of Flipped Classroom Experience
Ammar Aamer, Faculty of Engineering and Technology, Department of Industrial Engineering, Sampoerna University, Jakarta, Indonesia
Nesrine EL-Zine, Faculty of Arts and Humanities, Sana'a University, Sana'a Yemen

2:50 – 3:10 (Wednesday)

Chuhan Zhou, Sunjae Choi, Behzad Beigpourian, Siqing Wei, Daniel M Ferguson and Matthew W Ohland
Department of Engineering Education
Purdue University, West Lafayette, IN 47907, USA

Chuhan Zhou is a junior undergraduate student and Research Assistant in Engineering Education at Purdue University. He is currently majoring in Applied Statistics and minoring in Economics. He is interested in topics regarding data analysis and probability modeling. Chuhan has worked in CATME since 2018 and is currently conducting research regarding the CATME peer evaluation system, with a specific focus on how demographics might affect teamwork behaviors.

ID 155 The Difference between Teams with No Female Students and Teams with Female Students for Peer Evaluation Behavior in Engineering Education
Chuhan Zhou, Sunjae Choi, Behzad Beigpourian, Siqing Wei, Daniel M Ferguson, Matthew W Ohland, Department of Engineering Education, Purdue University, West Lafayette, USA

3:10 – 3:30 (Wednesday)

Elaiza E. Bautista, Glyda Aricon B. Marquez, Sheila May P. Gappi and Jaypy T. Tenerife
Industrial Engineering Department
Technological Institute of the Philippines, Quiapo Metro Manila, Philippines

Maria Teresa B. Mendoza
Industrial Engineering Department
Technological Institute of the Philippines, Quiapo Metro Manila, Philippines

Maria Teresa B. Mendoza is the current head of Industrial Engineering Department of Technological Institute of the Philippines, Manila. She graduated Master in Industrial Engineering and Management at Polytechnic University of the Philippines. Currently she is writing her dissertation for

PhD in Technology Management at Technological Institute of the Philippines, Manila. She handles IE students' design projects, community and company-based undergraduate researches as adviser.

ID 162 Unravelling the Stereotypes of Women in Industrial Engineering
Elaiza E. Bautista, Glyda Aricon B. Marquez, Sheila May P. Gappi, Jaypy T. Tenerife, and Maria Teresa B. Mendoza, Industrial Engineering Dept., Technological Institute of the Philippines, Quiapo Metro Manila, Philippines

Session III: **Global Engineering Education**

4:30 pm – 6:00 pm (Wednesday, October 23) - Mackenzie Room

4:30 – 4:50 (Wednesday)
ID 062 Natural Language Processing System for Self-Reflection and Peer-Evaluation
Rui Wang, Siqing Wei, Matthew W. Ohland, Daniel M. Ferguson, School of Electrical and Computer Engineering, Purdue University, IN, USA

4:50 – 5:10 (Wednesday)
Dr. Arwa Y. Aleryani
Associate Professor in Information Technology
Mississauga ON, Canada

The development of key competencies of engineering and technology graduates

Arwa Aleryani is an associate professor of Information Technology. She holds a Bachelor of Science in Computer Sciences from Kuwait University; an MSc in System Analysis and Design from City University/London, and a PhD in Information Technology; e-readiness for e-Government from the University of Khartoum. Dr. Aleryani has over fifteen years extensive academic and professional experience. Besides teaching and researching he has assumed different responsibilities among them, Dean of Faculty of Computer & Information Technology, Head of both, Quality Assurance Unit and distance learning Unit, and Editor-in-Chief of Information Technology and Networking Journal. The topics of her researches include e-government, technology acceptance and adoption, e-learning, e-business, databases systems, management information systems, system analysis and design, IT project management, Cloud computing, DSS, Big Data, IoT. Education and IT, and Quality Assurance in Higher Education. Quality Assurance in Higher Education; Teaching and Learning Methodologies. Dr. Aleryani has participated in several international and national conferences and workshops. She has published seven textbooks and a number of scientific papers and chapters in international conferences and journals. She also is a reviewer and member of advisory boards at a number of international scientific journals. Arwa Aleryani is a member of: TechWomen2012; Steering Committee of Arab women in Computing (ArabWIC); IEEE, and Immigrant Researchers Support Network (IRSN) – Canada

5:10 – 5:30 (Wednesday)
Ammar Aamer, Ph.D.
Dean of Faculty of Engineering and Technology
Sampoerna University
Indonesia

Title: **Transnational Engineering Education in South East Asia (Challenges and Opportunities)**

Session IV: **Global Engineering Education**

8:00 am – 9:30 am (Thursday) - Mackenzie Room
Session Chair: Dr. Mario Chauca, Ricardo Palma University, Santiago de Surco, Peru

8:00 – 8:20 (Thursday)

Dr. Mario Chauca
Professor and Vice Rectorate Research Advisor
Ricardo Palma University, Santiago de Surco 15039, Peru

Project Based Learning with Active Action Using Successive Repetitions in Engineering Education

Dr. Mario Chauca was a member of the Executive Committee of the Association Overseas Technical Scholarship AOTS-Kenshu Kiokay (Peru) for 4 years, a member of the technical committees since 2010, invited by the University of Washington IEEE, in 2010 joined the Steering Committee of the IEEE MWSCAS, has participated in committees in the European Union, Asia and Argentina, Brazil, Cuba, Estados Unidos, Mexico, Peru. Currently, he is on committees for the 2020 2nd AECCC 2020, 2020 4th ICACS 2020, SEE-USQ 2019, the ICMES 2019, the ICCCV 2019, the ICMME 2019, the ICIMA 2019, among others. All event proceedings are indexed in Scopus and other database. Chauca was an observer member of IFEES and participant as speaker at WEEF 2018 in Albuquerque (USA), a round table during WEEF 2017 in Kuala Lumpur (Malaysia). He obtained a scholarship from the Japanese Association Overseas Technical Scholarship (AOTS) for studies and training in Technology Management at the Tokyo Kenshu Center in Japan, from the National IT Industry Promotion Agency NIPA and Ministry of Science, ICT and Planning of the Future of Korea in the city of Seoul with certification signed by the minister of the Korean sector. He is a Consultant in Information and Communication Technologies in the government sector of Peru and in the United Nations Project-Inter-American Development Bank-Congress of the Republic of Peru and the Ministry of the Interior of Peru and in the private sector. He is a Peruvian researcher registered by the Peruvian Government, adviser first award paper CONEIMERA2018, adviser of the First General Award Project for more than 5000 projects in the contest from the Romero Group, adviser for first projects in congress INTERCON, CONEIMERA, and was nominated for the Graña y Montero Prize for Research in Peruvian Engineering. Nominated Peruvian Research Southern Prize 2019 and nominated research award 2018 MEXICO. He has published more than 50 papers in Peru and internationally, served as author and advisor of articles published in IEEExplore, Scopus and other database, organizer of international academic events and editor of proceedings, and advisor to the IEEE chapters at the National University of Callao and the Ricardo Palma University. He teaches at the postgraduate and undergraduate level, with 27 years of experience. He graduated as an Electronic Engineer from Ricardo Palma University in Lima Peru, obtained

his Master's Degree in Business Administration with a mention in "Business Management" and his Doctorate in Education from San Luis Gonzaga National University.

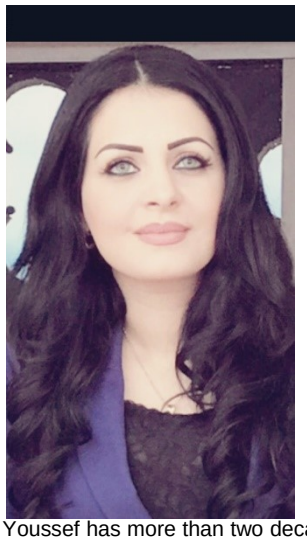
8:20 – 8:40 (Thursday)

Dr. Daw Alwerfalli
Professor and Director of Master of Engineering Management Program
A. Leon Linton Department of Mechanical Engineering, College of Engineering
Lawrence Technological University, Southfield, Michigan, USA

ID 354 Entrepreneurs: The Driving Force behind Small Business

Iman Youssef, International University of California
Daw Alwerfalli, College of Engineering, Lawrence Technological University, Southfield, Michigan, USA

Prominent professor, senior technical industry consultant and manufacturing engineering educator with a tremendous expertise in program and curriculum development in higher technical education. Highly experienced and dedicated community leader with great ability to work with an array of constituencies and coalitions in developing shared organizational vision to create and implement strategies aimed at advancing common causes to accomplish goals in fulfilment of the organization's mission. Highly perceived expert and industrial advisor. He is the founder of Manufacturing Engineering Solutions (MES) a consulting firm founded in 2000. He is senior technical consultant and strategist to the US manufacturing industry. MES developed executive training programs to numerous organizations such as Chrysler, Ford, GM, Exxon Mobil, Conco Philips, Marathon and Tier I and II suppliers to the US auto industry and other international companies. Published numerous research papers in many national and international conferences. Dr. Alwerfalli is a recipient of many prestigious awards including, the 2009 Arab American of the year in education, 1997 Lawrence Tech. Excellence in Teaching Award, 2004 Outstanding Engineering Faculty. He serves on many boards of directors, he also served on the Advisor Council of the Governor of Michigan for the Arab American and Chaldean Affairs Committee. He is currently serving on the steering committee of MAT 2 for dual education where he is a lead assessor to evaluate colleges for readiness in joining MAT 2 coalition of several German US based companies. Dr. Alwerfalli is also serving on the steering committee of "LIFT" Lightweight Innovation for Tomorrow, The committee is to develop innovative educational curriculum and skills for the next generation workforce for the Michigan, Ohio, Indiana and Tennessee under $148 Million, a federal grant for the year 2015-2016. For several years, Dr. Alwerfalli served as the academic advisor of many doctoral students who obtained their doctorate degrees and are currently leaders in the US auto industry.



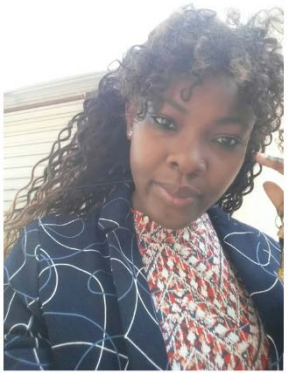
8:40 – 9:00 (Thursday)

Ms. Iman Youssef, MA. ILC. CA
CEO, Amour Fragrances and CEO, Best Canadian Liquidation (BCL)
LaSalle, Ontario, Canada

ID 355 Conducting a Feasibility Analysis and Crafting a Winning Business Plan

Iman Youssef, International University of California
Daw Alwerfalli, Professor, College of Engineering, Lawrence Technological University, Southfield, Michigan, USA

Ms. Youssef, is an Arab-Canadian woman-entrepreneur, community activist, CEO of two companies Amour Fragrances and Best Canadian Liquidation (BCL) located in Canada. Ms. Youssef is a humanitarian activist, national and international volunteer who regularly manages sponsorships and raises funds to support international causes. She participates in humanitarian and voluntary community work and fully engaged in supporting many charity organizations. Ms. Youssef is currently pursuing her Doctorate of Business Administration at William Howard Taft University with a research focused on Entrepreneurship among female immigrants; in collaboration with Windsor Women working with immigrant women WWWIW. Iman is fluent in Arabic, English and Sign language, she has applied these skills to pursue other opportunities in business. In 2007, Iman participated in hosting a health and beauty segment on My Second Home, a weekly television program through Rogers T.V. The purpose of this show was to help new immigrants to Canada by providing them with information to assist in the transition from the Middle East to Canada. Ms. Youssef is a member of board of directors of Daughters for Life Foundation; a non-profit organization, providing quality education for young women of the Middle East to achieve lasting peace. Ms. Youssef has more than two decades of experience in entrepreneurship, and a member of the Canada Arab Chamber of Commerce who awarded her the Business Excellence Award in 2013. Ms. Youssef was cited in the book titled SHEROES NEXT DOOR, When Ordinary women make extraordinary resolve by Subarna Gupta which was published by Next Century Publishing, Las Vegas Nevada, 2016. The book has helped thousands of people to think big. Iman has an interesting Entrepreneurship journey was one of ten inspiring stories published by the author.



8:40 – 9:00 (Thursday)

Ms. Mouchou Tchamdjeu Rosine
Mechanical & Industrial Engineering Department
University of Johannesburg, DFC campus
Johannesburg, South Africa

ID 378 Transforming industrial engineering course content using an industry 4.0 MOOC based feedback approach

Mouchou TR. is a Mechanical Engineering PhD researcher and an academic member at the Mechanical & Industrial Engineering Technology Department at the University of Johannesburg South Africa. She has an engineering background with a Masters and Bachelor degree in Industrial Engineering. She has work experience in Industrial Engineer R&D in an industry and she is a member of the Engineering Council of South Africa (ECSA).

Dr. Opeyeolu Timothy Laseinde
Mechanical and Industrial Engineering Department
University of Johannesburg, DFC campus
Johannesburg, South Africa

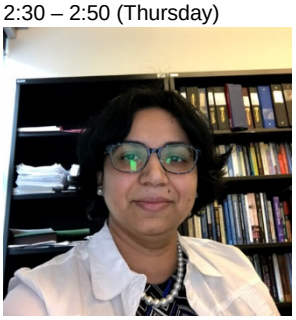
Laseinde OT. is an academic staff in Mechanical & Industrial Engineering Technology Department, at the University of Johannesburg South Africa. He has an engineering background with qualifications in Mechanical/Production engineering, and workplace experience in industrial engineering. He has vast experience in projects involving competitiveness improvement, quality management systems, performance evaluation, data analysis, engineering life cycle management, mechanical engineering machine design, and the application of Computer-Aided Design (CAD) for content development associated with virtual reality, robotics and automatic control. He has worked as an engineering consultant in Sustainability Development Goal's (SDG) projects for global organizations and is currently working as an academic within the teaching and research sector, where he is exploring avenues for pioneer innovations in the fourth industrial revolution.

Session VI: Global Engineering Education

2:30 pm – 4:00 pm (Thursday, October 24) - Mackenzie Room

Session Chair: Ian Waite, University of Central Florida, Orlando, Florida, USA

2:30 – 2:50 (Thursday)



Dr. Anjali Awasthi
Associate Professor, Concordia Institute for Information Systems Engineering
Faculty of Engineering and Computer Science, Concordia University, Montreal, Canada

Dr. Anjali Awasthi is Associate Professor at Concordia Institute for Information Systems Engineering (CIISE), in Concordia University, Montreal. She received a PhD in industrial engineering and automation from INRIA Rocquencourt and University of Metz, France. Prior to Concordia, Dr. Awasthi worked at University of British Columbia and University of Laval where she was involved in several projects on industrial applications of operations research. In France, she was involved in many European projects aimed at improving urban mobility in cities, city logistics and on cybernetic transportation systems. Her areas of research are modeling and simulation, data mining, Information Technology and decision making, sustainable logistics planning, quality assurance in supply chain management and sustainable supply chain management. She is the author of several journal and conference papers on these topics.

2:50 – 3:10 (Thursday)

Dr. Stephen A. Akinlabi
Senior Researcher, Department of Mechanical and Industrial Engineering Technology
University of Johannesburg, South Africa

Stephen A. Akinlabi holds a doctorate (D.Eng.) in Mechanical Engineering from the University of Johannesburg and currently a Senior Researcher at the Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, South Africa and a visiting Associate Professor to Mechanical Engineering, Covenant University, Ota, Nigeria. Stephen is Professional Mechanical Engineer with over Twelve (+12) years' industrial work experience in the oil & gas industry before joining the academics. He currently supervises over fifteen (15) Postgraduates and has published over one hundred and fifty (150) academic research articles in Journal, chapters in books, and conference proceedings. His research activity currently include: Forming processes, Laser material processing, and Laser additive manufacturing, Welding Processes and Friction Stir processing, Material Science and Characterization, Surface Modifications Techniques, Life circle assessment, Sustainable Engineering, Operations Management and Maintenance Engineering.

3:10 – 3:30 (Thursday)

Ian Waite
PhD Student, University of Central Florida, Orlando, Florida
Senior Customer Quality Manager, General Electric Aviation, USA

ID 376: "Design and Evaluate the "IMPACTS" Model for HIV/AIDS Healthcare Delivery Service System in Developing Countries: An Industrial Engineering Approach"

Ian Waite is a PhD student at the University of Central Florida in Orlando, Florida and a Senior Customer Quality Manager at the General Electric Aviation business. His doctoral research topic is "Design and Evaluate the IMPACTS Model for HIV/AIDS Healthcare Service Delivery System in Developing Countries: An Industrial Engineering Approach". The purpose of his research paper is to develop the conceptual framework of a healthcare delivery service IMPACTS model to reduce the amount of people not currently getting access to the HIV/AIDS treatment. Despite a growing body of literature on technology readiness level, scholars largely neglect the human readiness level portion of how human will interact with these new technologies especially in developing countries. This paper looks at the technology readiness level and human readiness level integration in the HIV/AIDS healthcare delivery service environment in Malawi Africa due to the limited accessibility to advance technologies. The overall system readiness level to ensure that people that are living with HIV/AIDS are getting access to treatment will be determine by the technology readiness level and the human readiness level. Outside of school, Ian managed the quality portfolios for Lockheed Martin Aeronautics, Gulfstream Aeronautics and Bombardier. Ian enjoys mentoring students and collaborating with researcher across multiple disciplines.

Dr. Pamela McCauley
Program Director-Innovation Corps-National Innovation Network Sites Program (I-Corps Sites)
National Science Foundation
Professor and Director of the Ergonomics Laboratory, Department of Industrial Engineering and Management Systems, University of Central Florida

Dr. Pamela McCauley is a biomechanics expert, a Professor and Director of the Ergonomics Laboratory in the Department of Industrial Engineering and Management Systems at the University of Central Florida, and an internationally acclaimed keynote speaker and popular author on a lifelong mission to increase diversity in Innovation and STEM. An award-winning educator often described as an outstanding professor and enthusiastic teacher, Dr. McCauley previously held the position of Martin Luther King, Jr. Visiting Associate Professor of Aeronautics and Astronautics at the Massachusetts Institute of Technology. Her teaching efforts have resulted in the receipt of both the College of Engineering Award for Excellence in Undergraduate Teaching and the Teaching Incentive Program Award (TIP). She is also the recipient of the National 2015 Black Engineer of the Year Award for Educational Leadership and the Promotion of College-Level Education.

Dr. McCauley is the author of over 100 technical papers, book chapters, conference proceedings and the best-selling ergonomics textbook, Ergonomics: Foundational Principles, Applications, and Technologies. Many of her leadership, diversity, innovation and STEM education related keynote talks draw from her research-based book; Transforming Your STEM Career through Leadership and Innovation: Inspiration and Strategies for Women, which examines the growing need for leadership and innovation, particularly among women and STEM professionals. Her newest book, The Essentials of Engineering Leadership and Innovation, is underpinned by years of applied experience in engineering settings, and is designed to develop and prepare engineers as leaders to accept the technical and managerial challenges that they will face as professionals. To inspire students, particularly minorities and females, to consider careers in STEM she authored, Winners Dont QuitToday they Call Me Doctor, in which she shares her challenging yet inspirational journey to engineering success despite financial, academic, and personal difficulties.

The U.S. State Department selected Dr. McCauley for the prestigious Jefferson Science Fellowship Program in 2015. Jefferson Science Fellowships are distinguished appointments to senior academics based on their stature, recognition, and experience in the national and international scientific or engineering communities, and their ability to rapidly and accurately understand scientific advancements outside their discipline area to effectively integrate this knowledge into U.S. Department of State/USAID policy discussions. Dr. McCauley also has the distinction of being a 2012 U.S. Fulbright Scholar Specialist Program Awardee for her US-New Zealand Human Engineering and Mobile Technology in High Consequence Emergency Management Research Program. In addition to her academic appointments, Dr. McCauley is a seasoned entrepreneur. As a highly sought expert witness, she applies ergonomics, biomechanics, physics and human engineering principles to support cases nationwide. She has also led start-up companies for the past 20 years developing human factors centric services and software products to support corporations, the Department of Defense, NASA and universities throughout the nation. Over the past twenty-five years, Dr. McCauley has held various leadership positions and has received numerous awards in recognition of her commitment, professional accomplishments and community outreach efforts in the business, technology, and education communities. She has received the Distinguished Alumni Award from the University of Oklahoma, the Engineer of the Year Award from the Florida Engineering Society, and has been recognized by the Society of Women Engineers as Engineering Educator of the year, and as the Millennium Woman of the Year by the Millennium Woman Foundation.

3:30 – 3:50 (Thursday)

Mohammad A Rahman, Ph.D.
Manufacturing and Construction Management
Central Connecticut State University
New Britain, CT, USA

Dr. Mohammad Anwar Rahman is a faculty at the Central Connecticut State University in Manufacturing and Construction Management. He has published papers in referred journals and presented results in conferences. His research focuses on logistics, supply chain management, stochastic process and designing quality procedure. Dr. Rahman conducted several research projects with Mississippi Dept. of Education (MDE) and US Dept. of Transportation (USDOT). He has various certifications including Lean Six Sigma Green Belt (Purdue University), Lean Principles (Purdue University), Demonstrated Master Logistician (The International Society of Logistics), Malcolm Baldrige Quality Award Examiner (Louisiana Quality Foundation), and Certified Transportation & Logistics (American Society of Transport & Logistics). Dr. Rahman is affiliated with ISERC, DSI, AST&L and IEOM.

Session VII: **Global Engineering Education**

4:30 pm – 6:00 pm (Thursday, October 24) - Mackenzie Room

Women in Industry and Academia (WIIA) Panel Session

Panel Chair

Pr. Loubna Benabbou
Management Sciences Department
UQAR- Lévis Campus, Lévis, QC, Canada

Dr. Loubna BENABBOU is a Professor of Management Sciences at Université du Québec à Rimouski (UQAR) at Lèvis campus. Her research work lie in the development and application of machine/deep learning and decision sciences to transform data for making better decisions and improving operational processes. Dr Benabbou has been supervising several undergraduate and graduate students in projects for different Industries related to the areas of machine learning, decision sciences and operations management. Her research related to these fields has been published in international scientific journals and conferences' proceedings. Dr Benabbou was an associate professor of Industrial Engineering at EMI School of Engineering. She was also a trader at Casablanca stock exchange and financial analyst and risk manager at the Caisse Marocaine des retraites the Moroccan largest intuitional fund manager. Dr Benabbou is an industrial engineer from EMI School of Engineering, she earned an MBA and a PhD in machine learning and decision sciences from Laval University.

Panel Speaker I

Dr. Ilham Kissani
Assistant Professor of Engineering & Management Science
School of Science & Engineering
Al Akhawayn University, Ifrane, Morocco

Dr. Ilham Kissani is an assistant professor in the field of engineering management for the School of Science and Engineering at Al Akhawayn University in Ifrane, Morocco. She has served as the main advisor and lead instructor for the undergraduate and MS programs in Engineering and Management Systems since 2010. She has helped create very close ties with the AUI School of Business Administration, which allows both schools to leverage our resources and deliver a greater diversity of courses to students, such as supply chain management and operations management. Her background is diverse and includes industrial experience as well as academic. Her degrees are from INSEA, Morocco (Engineer) and Université Laval, Canada (Master and Ph.D). She has worked with Royal Dutch Shell as a project manager and with Modellium Québec, where she consulted in logistics and supply chain issues. Additionally, Dr. Kissani contributes in research in supply chain management, planning, and operations research. She is a member of ASEM, IEEE, IEOM, IIE, and INFORMS.

Panel Speaker II

Prof. Soumaya Yacout
Professor, Department of Industrial Engineering
École Polytechnique de Montréal, Montréal, Québec, Canada

Soumaya Yacout is a full Professor in the Department of Mathematics and Industrial Engineering at Polytechnique Montreal in Canada since 1999. She is also the founder, President and CEO of DEXIN Inc., an enterprise dedicated in offering state of the art technologies for data-driven solutions to help companies in achieving the highest level of value added performance by keeping their physical assets in good health. She earned her doctoral degree in Operations Research at The Georges Washington University in 1985, her bachelor degree in Mechanical Engineering in 1975, and her masters in Industrial Engineering in 1979, at Cairo University. Her research interests include preventive, predictive and prescriptive maintenance and optimization of decision-making. She has publications in peer-reviewed journals including Quality Engineering, International Journal of Production Research, Computers and Industrial Engineering, IEEE Transactions, Journal of Intelligent Manufacturing, Expert Systems with Applications, and papers in international conferences, some of which received the best paper award. She is the co-editor and the co-writer of a book 'Current Themes in Engineering Technologies' on minimal repair, and the book 'Ontology Modeling in Physical Asset Integrity Management' on interoperability and exchangeability of data. She is a senior member of the American Society for Quality ASQ, and the Canadian Operations Research Society CORS. She is a Registered Professional Engineer in Quebec.

Panel Speaker III
Dr. Samira Keivanpour
Assistant Professor
Polytechnique Montréal
Canada

Samira is an Assistant Professor at Polytechnique Montréal. She earned her Bachelor's degree in Electrical Engineering and MBA in Operation Management from Iran. She received her Ph.D. in Industrial Engineering from Laval University. Samira was a postdoctoral fellow and professional researcher at the Department of Mechanical Engineering of Laval University during 2015-2017. She was a faculty member at Thompson Rivers University before joining Polytechnique Montréal. Her research interests include Sustainable solutions in supply chain and logistics, end of life products treatment, digital supply chain, and industry 4.0.

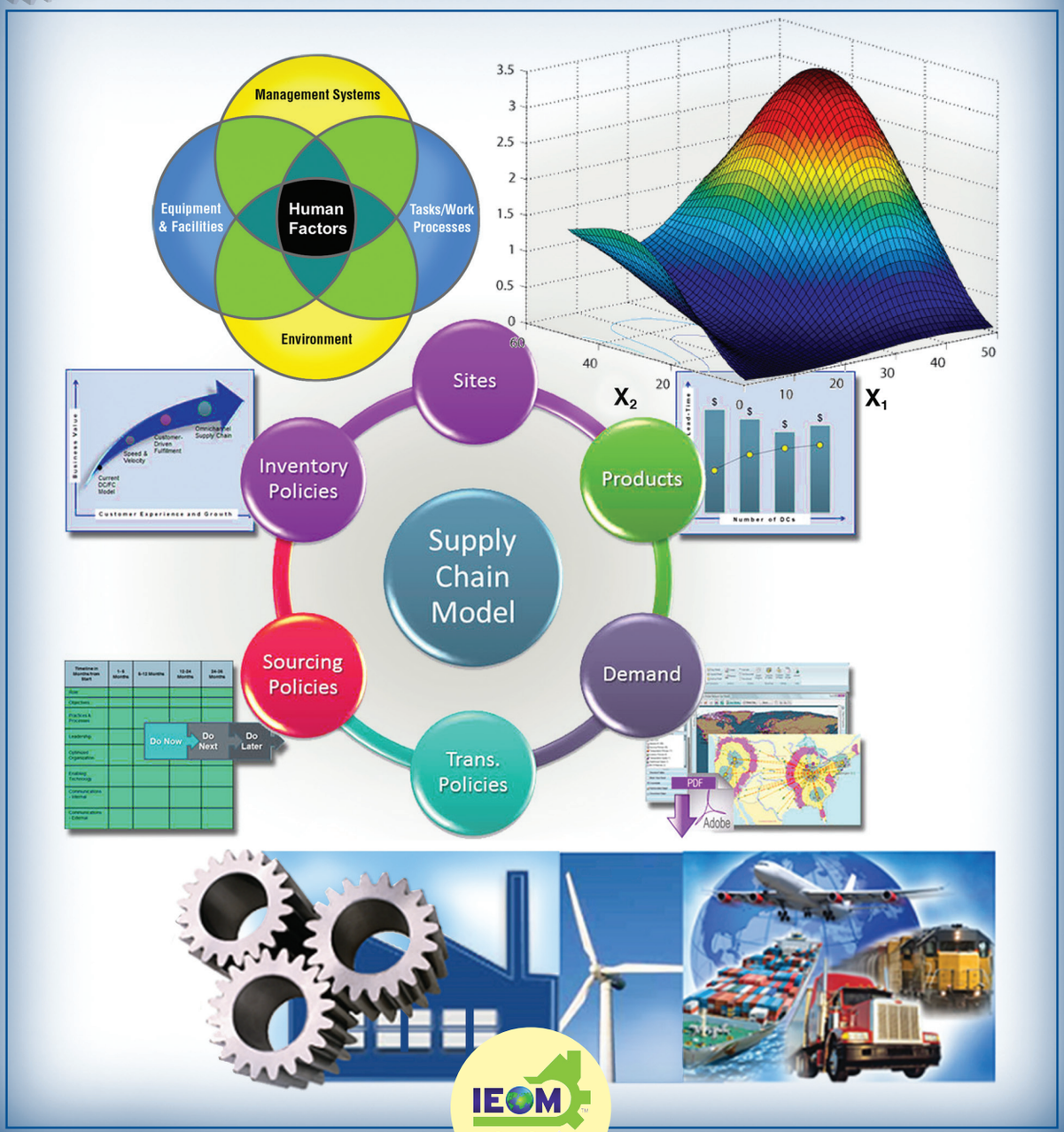
Panel Speaker IV
Isha Grewal, MBA Finance, Project Mgmt.
Key Accounts Driver, PwC Canada
Marketing Director, Women Who Rock
Toronto, Canada

Isha Grewal is a Key Accounts Driver at PwC Canada with the primary focus on Manufacturing, Automotive and Engineering & Construction industry. She is the Marketing Director for 'Women Who Rock' foundation which focuses on networking programs, leadership workshops and development of women in the mining sector. An entrepreneur at heart, she started a small business in GTA by the name of City Screens, that offers a private advertising channel for small businesses, and is powered by a Connected Digital Signage Solution. She is an experienced Industry 4.0 consultant, with knowledge of automation and data-driven solutions. She is an advocate for women in the industry and is actively engaged in efforts to improve women sponsorship at workplaces, providing them with equal opportunities for growth, programs for their leadership development and better work-life balance. She has an MBA in Finance from Lawrence Tech University, MI-USA, and received a Diploma in Project Management after completing her Undergraduate in Commerce from University of Delhi-India before immigrating to Canada. She also has a certificate in Negotiation Mastery from Stanford University.

IEOM

International Journal

of Industrial Engineering and Operations Management



Third European Industrial Engineering and Operations Management 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

Annual Production Engineering Week of Sorocaba (XI SEPS), May 22 - 23, 2019, Faculdade de Engenharia de Sorocaba (FACENS), The Sorocaba Engineering School, Sorocaba/SP, Brazil

Facens Student Chapter

8th IEOM Annual International Conference, Bangkok, Thailand, March 5-7, 2019

Second IEOM Fellows Induction at the IEOM Bangkok Conference on March 6, 2019

First African IEOM Conference, Pretoria, South Africa, October 30 – November 1, 2018

Third North American IEOM Conference, Washington, DC, USA, September 27-29, 2018

Second European IEOM Conference, Paris, France, July 26-27, 2018

8th IEOM International Conference (Bandung, Indonesia, March 6-8, 2018)

1st South American IEOM Conference (Bogota, October 25-26, 2017)

High School & Middle School STEM Poster Competition Detroit 2019

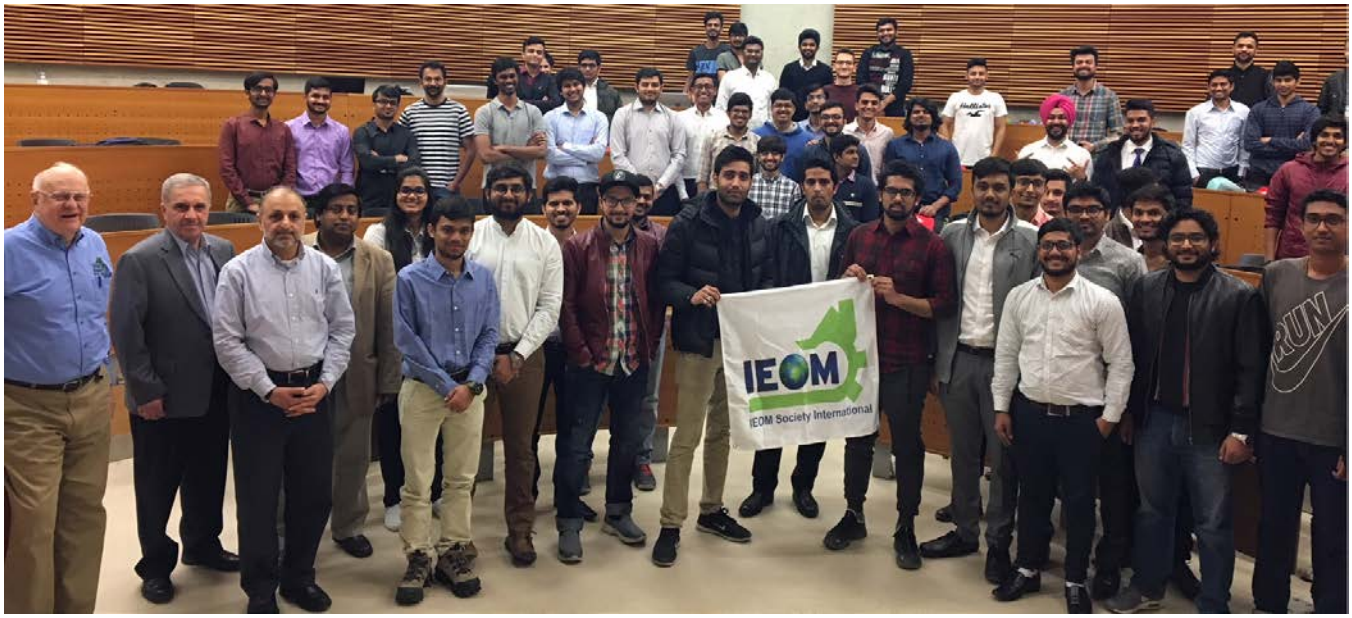
IEOM Student and Professional Chapter Activities: www.ieomsociety.org/chapters/

Bulacan State University, Philippines

Universitas Tarumanagara, Indonesia

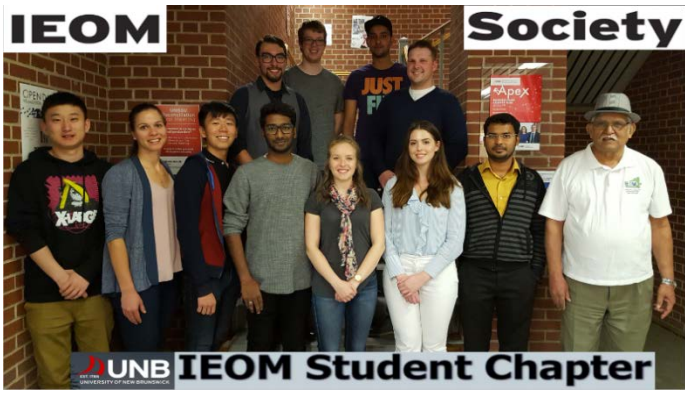
King Abdulaziz University, Rabigh, Kingdom of Saudi Arabia

University of Malaysia, Sabah



University of Windsor, Canada

Lawrence Technological University



University of New Brunswick at Fredericton, Canada

Government College University Faisalabad (GCUF), Pakistan

Khulna University, Bangladesh

IEOM Michigan Chapter

IEOM Price Sultan University, KSA Chapter

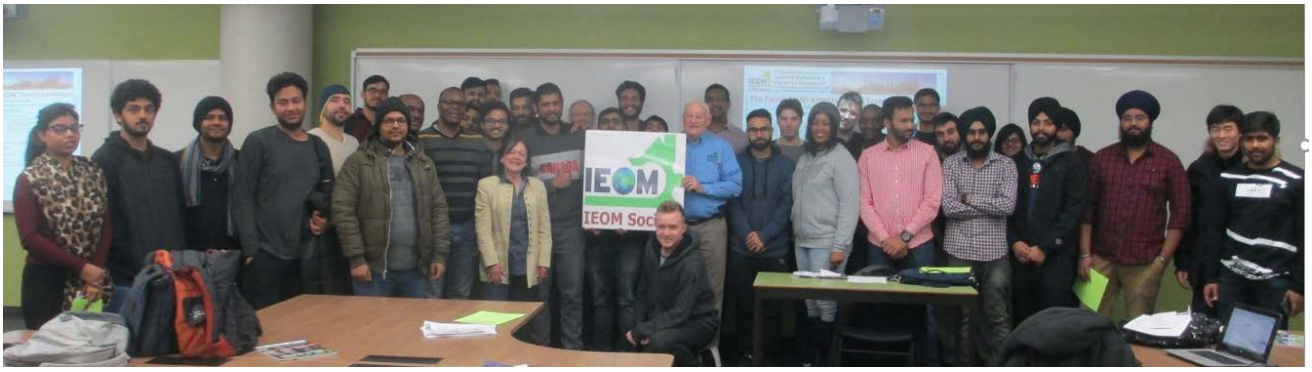
Guru Nanak Dev Engineering College, Punjab, India

IEOM Botswana Chapter

Zagazig University, Egypt

IEOM University of Johannesburg Chapter

IEOM King Fahd University of Petronius and Minerals (KFUPM) Seminar 2018



Sheridan College, Brampton, Ontario, Canada Presentation 2018

Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh

University of Costa Rica

King Saud University, Riyadh, Saudi Arabia

Effat University, Jeddah, Saudi Arabia

IEOM Student Chapters

IEOM Student Chapter can help students in the development or enhancement their outer important skills, including: leadership, communications, organization, planning, time management, budgeting and finance, and other professional skills. Those can help to prepare for their career and to be successful in longer term. If any student group of any educational institute is interested to form an IEOM Student Chapter, please submit chapter establishment form. Contact: info@ieomsociety.org.

Suggested Student Chapter Activities

Workshops and Seminars
Industry Speakers
Plant Tours
Communication Development
Career Development
Networking
Poster and Paper Contest
Fund Raising
Membership Building
Community Outreach
Alumni Relations
Leadership and Teambuilding Skills

International Journal of Industrial Engineering and Operations Management (IJIEOM)
www.ieomsociety.org/journals/
Scholar One Manuscript Central Submission Open

IEOM First Symposium on "Application-based Industrial Engineering Education"

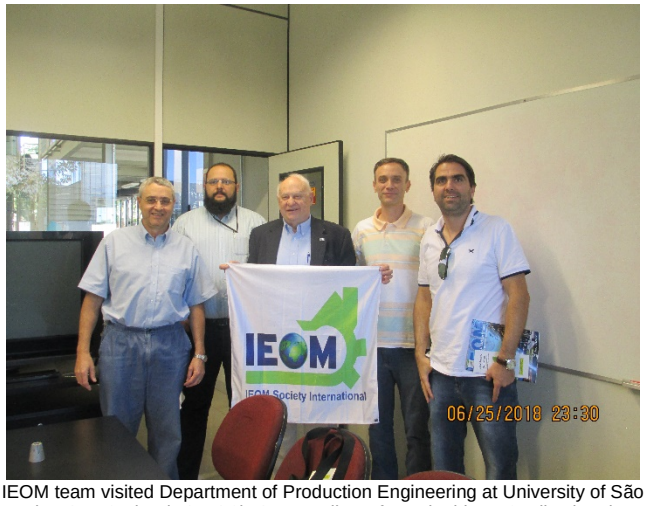
Date: 4 August, 2018; Venue: Jessore University of Science and Technology (JUST), Bangladesh

Organized by JUST and IEOM Society of Bangladesh

Theme: Present scenario of IE Education in Response to Global Environment and Contribution of IE to Industrial Development in Bangladesh

IEOM Brazil 2018 Visit

IEOM Team has visited Production Engineering Department of Polytechnic School, University of Sao Paulo (USP), Brazil on June 25, 2018. Photos from left - Prof. Dr. Renato de Oliveira Moraes, Prof. Marcelo Schneck de Paula Pessoa (Deputy Department Head), Professor Don Reimer, Prof. Fernando José Barbin Laurindo (Department Head), Prof. Mauro de Mesquita Spinola, Dr. Ahad Ali, and Prof. Vitor Caldana (IFSP – Sorocaba).



IEOM team visited Department of Production Engineering at University of São Paulo - Sao Carlos (USP-SC), SP, Brazil: Prof. Reginaldo T. Coelho (Nucleus of Advanced Manufacturing, Institute Factory of Millennium), Prof. Vitor Caldana (IFSP – Sorocaba), Professor Don Reimer, Professor Eraldo Jannone da Silva (Nucleus of Advanced Manufacturing, Institute Factory of Millennium), and Prof. Aldo Roberto Ometto Coordinator of Post Graduate Program of Production Engineering at EESC-USP)

IEOM team visited Department of Production Engineering at Federal University of Sao Carlos (UFSCar), SP, Brazil: Dr. Ahad Ali, Prof. Dr. Roberto Antonio Martins, Professor Rosane L. Chicarelle Alcantara, Professor Hildo Meirelles de Souza Filho (Head of Production Engineering), Professor Don Reimer and Prof. Vitor Caldana (IFSP – Sorocaba)

Visited FACENS (Soracaba Engineering College), Sorocaba, SP, Brazil on July 3, 2018. Photo includes Eng. Paulo Roberto Freitas de Carvalho Facens (Director), faculty and students.

IEOM team visited Universidade Presbiteriana Mackenzie Campinas, SP, Brazil: Prof. João Carlos Gabriel - Coordinator of the Civil Engineering at the Center for Science and Technology - CCT – Mackenzie (far left) and Prof. Luiz Vicente Figueira de Mello Filho - Coordinator of the Production Engineering Course at Mackenzie Presbyterian University (far right).

Visited University of Sorocaba (UNISO), Sao Paulo, Brazil on July 2, 2018. Photo includes Mr. Osmar Renato de Barros Siqueira (center), Head of the International Office, Universidade de Sorocaba – Uniso.

IEOM Team visited IFSP of Sorocaba campus, SP, Brazil on June 29, 2018. Photos include Ms. Cynthia Fisher (International Relations Advisor of The Federal Institute of Education, Science and Technology, Sao Paulo) and Dr. Denilson C. Mirim (Director – IFSP – Sorocaba).

IEOM Global Engineering Education Symposium Speakers at Instituto Federal de São Paulo – Campus Sorocaba, SP, Brazil: Dr. Ahad Ali (USA), Professor Donald M. Reimer (USA), Prof. Vitor M. Caldana (IFSP – Instituto Federal de São Paulo), Dr. Marcia Terra da Sihra (Paulista University – UNIP) and Profa. MSc. Eliane Regina Rodrigues Message (ZorrfaTec, SP, Brazil). Symposium Chair - Prof. Vitor M. Caldana.

IEOM University of Monterrey (UDEM), Mexico Visit, May 29-30, 2018

5th North American IEOM Conference

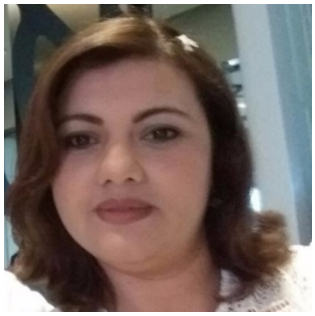
Monterrey, Mexico, September 30 - October 2, 2020

Venue: Cintermex Convention Center

http://www.ieomsociety.org/monterrey2020/

Conference Chairs:

Dr. Bernaro Villarreal Celstino
Engineering Department
University of Monterrey, México



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Ing. Jacobo Tijerina Aguilera
Director of Extension, Consulting and Research Division
University of Monterrey, México

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- Libya
- Morocco
- Namibia
- Nigeria
- Tunisia
- Zambia
- Zimbabwe

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- Greece
- Italy
- Portugal
- Russia

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- Bhutan
- Indonesia
- Kazakhstan
- Malaysia
- Pakistan
- Sri Lanka
- Uzbekistan

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- Iraq
- Jordan
- Lebanon
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- Saudi Arabia
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- Costa Rica
- Honduras

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1. Queensland University of Technology (QUT), Brisbane

Bangladesh
2. Ahsanullah University of Science & Technology, Dhaka
3. Bangladesh Univ. of Engineering and Technology (BUET)
4. Islamic University of Technology (IUT)
5. Jessore University of Science and Technology (JUST)
6. Khulna University
7. Khulna University of Engineering and Technology (KUET)

Botswana
8. University of Botswana

Brazil
9. Federal University of Sao Carlos (UFSCar)
10. Federal University of Santa Catarina (UFSC)
11. Univeristy of Sao Paulo (USP) – Sao Carlos
12. Federal Institute of Sao Paulo (IFSP) – Sorocaba
13. Faculdade de Engenharia de Sorocaba (FACENS)

Canada
14. University of New Brunswick at Fredericton
15. University of Windsor

Colombia
16. Fundación Univ. Tecn. Comfenalco, Cartagena, Bolívar
17. University of Rosario, Bogota
18. University of Quindio
19. Universidad de San Buenaventura, Cali, Valle

Costa Rica
20. University of Costa Rica

Czech Republic
21. University of West Bohemia, Pilsen

Ecuador
22. Technical University of Ambato

Egypt
23. Zagazig University

Finland
24. University of Vaasa

France
25. IESEG School of Management
26. Lorraine University, Metz

Greece
27. Technological Education Institute (TEI), Thessaly, Larissa

India
28. College of Engineering Guindy (Anna University), Chennai
29. Guru Nanak Dev Engineering College, Ludhiana, Punjab
30. Pandit Dendayal Petroleum Univ., Ahmedabad, Gujrat
31. P.D.A. College of Engineering, Gulbarga, Karnataka, India
32. Vellore Institute of Technology
33. Vidya Jyothi Institute of Technology, Hyderabad

Indonesia
34. Bina Nusantara University (Binus), Indonesia
35. Institut Teknologi Bandung
36. Institut Teknologi Sepuluh Nopember (ITS)
37. Sampoerna University, Jakarta
38. Shipbuilding Institute of Polytechnic Surabaya
39. Universitas Diponegoro (Undip)
40. University of Indonesia
41. Universitas Sebelas Maret (UNS), Surakarta
42. Tarumanagara University

Iran
43. MehrAstan University, Guilan
44. University of Eyvanekey

Iraq
45. Babylon University

Italy
46. University of Salento

Japan
47. Ashikaga University

Kenya
48. Kenyatta University, Nairobi

Malaysia
49. Universiti Malaysia Sabah (UMS)
50. Universiti Putra Malaysia (UPM)
51. Universiti Teknologi Malaysia (UTM)
52. Universiti Tun Hussein Onn Malaysia (UTHM)
53. Universiti Utara Malaysia (UUM)

Morocco
54. Akhawayn University
55. Ecole Mohammadia d'Ingénieurs (EMI)

Namibia
56. National Univ. of Sci. and Tech. in Windhoek, Namibia

Nepal
57. Kathmandu University
58. Tribhuvan University

Nigeria
59. Covenant University
60. University of Ibadan

Oman
61. Sultan Qaboos University

Pakistan
62. Dawood University of Engineering and Technology, Karachi
63. Government College University Faisalabad
64. Mehran University of Engineering and Technology, Jamshoro, Sindh
65. University of Lahore

Paraguay
66. National University

Peru
67. National University of San Antonio Abad, Cusco, Peru

Philippines
68. LPU Laguna
69. Bulacan State University, Malolos City, Bulacan

Qatar
70. Qatar University

Saudi Arabia
71. Alfaisal University
72. Effat University
73. King Abdulaziz University (KAU)
74. King Abdulaziz University, Rabigh
75. King Fahd University of Petroleum and Minerals (KFUPM)
76. King Saud University (KSU)
77. Prince Sultan University
78. Taibah University

South Africa
79. Durban University of Technology (DUT)
80. Tshwane University of Technology (TUT)
81. University of Johannesburg (UJ)
82. University of South Africa (UNISA)
83. Vaal University of Technology (VUT)

Sri Lanka
84. University of Kelaniya
85. University of Peradeniya

Sudan
86. Sudan University of Science and Technology, Khartoum

Thailand
87. Chulalongkorn University, Bangkok
88. Chiang Mai University

UK
89. University of Derby
90. University of the West of England (UWE), Bristol

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91. Central Connecticut State University
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Venezuela
94. Catholic University Andrés Bello (UCAB), Caracas

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95. University of Zambia
96. Copperbelt University
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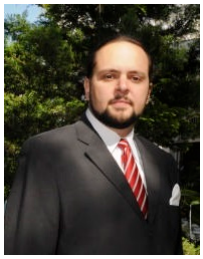
Johannesburg, South Africa

Professor Abdul Talib Bon, Ph.D.
Professor of Technology Management, Department of Production and Operations Management, Universiti Tun Hussein Onn Malaysia



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Upcoming Events

1st GCC International Conference on
Industrial Engineering and Operations Management
Nov. 26-28, 2019, Riyadh, Saudi Arabia
Venue: Prince Sultan University (PSU) Campus

www.ieomsociety.org/gcc2019/

10th IEOM International Conference

Hyatt Regency, Dubai, United Arab Emirates (UAE)
March 10-12, 2020

Conference Website: www.ieomsociety.org/ieom2020/

2nd South American Conference on
Industrial Engineering & Operations Management
São Paulo, Brazil, April 14-16, 2020
Venue: Maksoud Plaza Hotel, São Paulo

www.ieomsociety.org/brazil2020/

4th IEOM European Conference

Rome, Italy, July 22-24, 2020

Venue: The Faculty of Civil and Industrial Engineering of Sapienza – University of Rome, Italy

Conference Website: www.ieomsociety.org/rome2020/

5th North American Conference on
Industrial Engineering & Operations Management
Monterrey, Mexico, Sept. 30-Oct. 2, 2020
Venue: CINTERMEX-Monterrey Convention Center

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