



**IEOM** International Conference on  
Industrial Engineering and  
Operations Management  
Bogota, Colombia, October 25-26, 2017  
IEOM Society Venue: Marriott Hotel, Host: Univ. of Rosario



# Preliminary Program

**IEOM Bogota Conference**

Marriott Hotel, Bogota, Colombia, October 25-26, 2017



## Organizers



# Sponsors and Partners

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## Organised by:



University of Rosario, Bogota, Colombia



**IEOM Society**

*"Achieving and Sustaining Operational Excellence"*

[www.ieomsociety.org](http://www.ieomsociety.org)

**IEOM Society International**

# Welcome to Bogota, Colombia and International Conference on Industrial Engineering and Operations Management (IEOM), October 25-26, 2017

## To All Conference Attendees:

On behalf of the IEOM Society International, University of Rosario, Bogota, Colombia and all the technical sponsors and organising committee, we would like to welcome you to the 1<sup>st</sup> South American International Conference on Industrial Engineering and Operations Management (IEOM) in Bogota, Colombia. This unique international symposium provides a platform for academics, researchers, scientists and practitioners to exchange ideas to bridge the gap between the Industrial Engineering and Operations Management theory and its application to solve the most current problems and challenges faced by 21<sup>st</sup> century organisations. The event will also foster networking, collaboration and a joint effort among the conference participants to advance the theory and practice to identify major trends in Industrial Engineering and Operations Management. The symposium will also provide the participants with an excellent opportunity to network with leading scholars and practitioners. After a thorough peer review process, about 150 papers/abstracts have been accepted from about 200 submissions representing more than 35 countries. The programme includes many cutting edge topics of industrial engineering and operations management. Full papers will be indexed in the Scopus, subject to satisfying IEOM Quality Standards.

The main focus of the symposium is to explore how the fields of Industrial Engineering and Operations Management may contribute in addressing one of the main challenges that mankind is currently facing; i.e. how to achieve sustainable economic and social growth while at the same time reducing environmental degradation, climate change and resources scarcity. The 1<sup>st</sup> South American International Conference on Industrial Engineering and Operations Management will hence promote knowledge and experience sharing between Industrial Engineering & Operations Management experts to address this challenge. Our keynote and distinguished speakers will discuss some of these issues:

- *Dr. Pedro Jose Fernandez Ayala, Vicepresidente de innovación e inteligencia, Sectorial PROCOLOMBIA.*
- *Fabián Escudero Jessurum. Gerente Comercial. CELPA – ZONA FRANCA PERMANENTE S.A*
- *Dr. Edgar Higuera Gomez, Gerente de Logística, Transporte e Infraestructura de la ANDI*
- *Leonardo E. Wilinski, VP South America, Siemens Industry Software, Digital Factory, Product Lifecycle Management, Sao Paulo, Brazil*
- *Dr. Lope Hugo Barrero, Assoc. Professor and Chair, Dept. of Industrial Engineering, Pontificia Universidad Javeriana, Bogota, Colombia.*
- *Profesor. Charles Mbohwa Vice-Dean Postgraduate Studies, Research and Innovation Professor in Sustainability Engineering and Energy Faculty of Engineering and the Built Environment (FEBE). University of Johannesburg (UJ) Johannesburg, South Africa*
- *Juan G. Villegas, Associate professor, Department of Industrial Engineering, Universidad de Antioquia, Medellín, Colombia*
- *Mr. Gil Lugo, President, Lean ISO Experts, Inc., President, Green and Sustainable Solutions, Inc., Hollywood, Florida, USA*
- *Professor Donald M. Reimer, President, The Small Business Strategy Group, Detroit, Michigan, USA*
- *Enrique Sandoval, Vice President and COO, OCENSA, Bogota, Colombia*
- *Dr. Juan Diego Alzate, Fundador de Transprojects (Paris), Smart Grop Asia (China)*
- *Dr. Rodolfo Sabonge, Ex Vicepresidente del Canal de Panamá*
- *Dr. Gian Paolo Gandini, Director Corporativo de adsorchind Belcorp, Gerente general Andina Charer paner Apics.*
- *Dr. Fernando Cámara, Director de Logística Jerónimo Martins ARA.*

*Sesión ponencias y Panel: - Salón Esmeralda: Diana González Díaz Directora de mercadeo de Don Jediondo, Sebastian Puerta Mantilla Jefe de Operaciones Carga Internacional Latam, Daniel Villa Camacho Chief operating official of Colombia, Perú and Ecuador Domicilios.com*

With the great success of the Global Engineering Education Series of past IEOM conferences, the 1<sup>st</sup> Latin American International Conference on Industrial Engineering and Operations Management (IEOM) will have a dedicated session to this theme, where distinguished speakers will discuss the readiness of engineering graduates for workforce around the world as well as address engineering education challenges and opportunities. The Industry Solutions track will address current industry needs to survive in the competitive environment. Distinguished practitioners will share their experiences and journey to be successful and address industrial challenges and opportunities for continuous improvement and sustainability.

The IEOM Society International, the University of Rosario, and all the technical sponsors and organising committee would like to express our deepest gratitude to our sponsors, university partners, authors, reviewers, keynote speakers, panel speakers, track chairs, local committee, advisors and the many volunteers who have given so much of their time and talent to making this unique event an overwhelming success.

We would also like to thank the students who are participating in this event. Your Conference Planning Committee welcomes you to Bogota and wishes you an enjoyable learning experience at the conference and a safe and fun adventure exploring the Colombia with its many outstanding attractions and sightseeing derived from its multiculturalism.

Enjoy the conference, and the Bogota experience.



**Professor Sandra Milena Chacon Sanchez**  
Directora del Programa de Administración de Empresas  
Directora programa de Administración en Logística y producción  
Universidad del Rosario, Bogota, Colombia



**Ahad Ali, Ph.D.**  
Executive Director – IEOM Society International  
Associate Professor and Director of Industrial Engineering Programs,  
Lawrence Technological University, Southfield, Michigan, USA



# Keynote Speakers

October 25 (Wednesday)

8:00 – 8:10, Wednesday **WELCOME ADDRESS - Salon Esmeralda I and II**



## José Manuel Restrepo

President  
University of Rosario  
Bogota, Colombia

José Manuel Restrepo is the President of Universidad del Rosario in Bogota, Colombia. He is an Economist from the same University, where he also obtained a graduate certificate in Private Finance and Senior Management. He holds a Master's degree in Economics from the London School of Economics and a PhD in Management of Higher Education Institutions from the University of Bath.

Dr. Restrepo previously worked as President of CESA (a Business School based in Bogota) and was part of the Financial Planning Department at FONADE (Financial Fund for Development Plans in Colombia). He was member of the National Council for the Quality Assurance of Higher Education at the Colombian National Ministry of Education. His proven experience has allowed him to perform as a business consultant, as well as an advisor in quality assurance and accreditation of higher education institutions.

He is the author of several books, merit dissertations, research papers and academic articles published both nationally and internationally. He was recognized as one of the outstanding young executives of the country in 2003 by The Colombian Junior Chamber and was one of the 6 winners of the CEO of the Future contest, held in 2005 by Dinero magazine, Korn Ferry International and the Universidad de los Andes MBA program.

8:10 – 8:20, Wednesday **WELCOME ADDRESS - Salon Esmeralda I and II**



## Alejandro Cheyne

Dean School of Business  
University of Rosario  
Bogota, Colombia

José Alejandro Cheyne G. es considerado como uno de los catedráticos más importantes en los programas de Educación Superior en Colombia. Su firme deseo por compartir desde muy joven sus experiencias de aprendizaje teórico – prácticas, lo han hecho merecedor de diferentes reconocimientos como Colegial de Número de la Universidad del Rosario, The Outstanding Young People de la Cámara Junior Internacional Colombia y Profesor destacado en programas de

postgrado entre otros.

Su gran esfuerzo por fortalecer el pensamiento complejo en sus alumnos con su dimensión física, intelectual y espiritual como respuesta a las contradicciones de la hipermodernidad, se refleja no solo en el desarrollo de competencias nucleares sino también en resultados aún más nobles cuando logra trascender en su proyecto de vida.

El deseo permanente por avanzar en su proceso de formación académica lo han llevado a cumplir satisfactoriamente su pregrado en economía, especialización en docencia universitaria, especialización en administración de empresas, estudios de alta gerencia internacional y recientemente su doctorado en pedagogía en donde el emprendimiento se ha convertido en el centro de su labor investigativa.

8:20 - 8:50, Wednesday **KEYNOTE - Salon Esmeralda I and II**



## Dr. Pedro Jose Fernandez Ayala

Vicepresidente de innovación e inteligencia  
Sectorial PROCOLOMBIA

Accomplished professional in Business Administration. Specialist in Statistics, Information Systems, Marketing Research, Public Opinion and Political Marketing. Broad experience in Project Management, as well as in research and marketing projects, with emphasis in designing and monitoring marketing intelligence processes and use of information for decision-making and Market Analysis. Executive with high efficiency management practice and recognized abilities in handling personnel by establishing meaningful and strong interpersonal relationships. Proven leadership and excellent people skills that enables exceptional teamwork.



9:00 - 9:45, Wednesday

**KEYNOTE - Salon Esmeralda I**

**Jorge Enrique Rojas Rodriguez**  
 Assistant Professor of Industrial Engineering  
 Universidad del Bosque  
 Bogota, Colombia

M.A. in Industrial Engineering with more than 10 years of experience in academia, administrative topics (purchases, contracts, insurances, portfolio, among others), finance (cost and expenses tracking, budget allocation, definition, cash flow, importations cost and evaluation of investment projects, follow up and development of management indicators, including the definition of the compensation model of the commercial force and the definition of prices by channel) and optimization and productivity (comparative analysis of business units and measure of individual and global efficiency)

Academic experiences of more than 10 years in bachelor degrees and post-graduate degrees in areas of processes optimization and consulting of corporative improvement.

*“Application of Operations Investigation to a Model of Assignment towards Typical Processes in a Supply Chain”*

9:00 - 9:45, Wednesday

**KEYNOTE - Salon Esmeralda II**

**Fabián Escudero Jessurum**  
 Gerente Comercial. CELPA – ZONA FRANCA PERMANENTE S.A

Ingeniero Industrial  
 Universidad del Norte; Barranquilla  
 Maestría en Dirección de Marketing MDM  
 Colegio de Estudios Superiores de Administración - CESA; Bogotá  
 Maestría en Dirección de Marketing y Gestión Comercial  
 ESIC Business Marketing School– Madrid; España

9:45 – 10:15 Break

10:15- 11:15, Wednesday

**KEYNOTE - Salon Esmeralda I & II**

**Dr. Edgar Higuera Gomez**  
 Gerente de Logística, Transporte e Infraestructura de la ANDI

Ingeniero en Transportes y Vías  
 Postgrados en optimización del transporte, planeación de transporte, UPV  
 Coordinador Regional estudio de Logística y Competitividad en la Comunidad Andina. CAF.  
 Conferencista en diferentes foros internacionales.  
 Ha actuado como Presidente de la Comisión Andina de Transporte.  
 Miembro de los Consejos directivos de distintas entidades y comités públicos y privados del sector transporte en Colombia y la Comunidad Andina.  
 Consultor de CCI/UNCTAD – OMC, BID, OEA,  
 Especialista en Logística Programa Trainmar.  
 Asesor de Plataformas Logísticas Portuarias

*“Challenges and Opportunities in Transportation and Logistics”*

11:15 – 12:30, Wednesday

**KEYNOTE - Salon Esmeralda**

**Leonardo E. Wilinski**  
 VP South America Channel  
 Siemens Industry Software  
 Digital Factory Division  
 Product Lifecycle Management  
 Sao Paulo, SP, Brazil

Leonardo E. Wilinski is an industry veteran with over 25 years' experience building and manage sales and marketing teams for software and service providers in the industrial IT market in South America Countries. Mr. Wilinski spent last 17 years with Siemens Industry Software, also known as Siemens PLM, becoming Vice President, South America Channel in 2013. Siemens PLM's Channels in South America include Value Added Resellers (VARs), Corporate Resellers, Educational VARs and Independent Software Vendors (ISVs).

Mr. Wilinski is today responsible for the end-to-end execution of sales and services to Customers with Channels. In his previous tenure within Siemens, he was in charge of Regional Direct Sales teams, as Manager and Director in Brazil, and Country Manager of Spanish Speaking Countries in South America.

Prior to Siemens, Mr. Wilinski spent 10 years in field sales roles in the Brazilian market, as Account Executive, Sales Manager and Sales Director, mainly serving companies in the utilities and finance IT market and medium and large industrial organizations in the ERP market. Mr. Wilinski was born in Montevideo, Uruguay, and holds a Bachelor of Science degree and a Civil Engineer Highway degree from Universidad de la República Oriental del Uruguay, and a Master in Business Administration from Fundação Getúlio Vargas in Brazil.

#### Summary of Qualifications

B2B Sales, Sales Strategy, Sales Performance, Sales Productivity, Sales Enablement, Territory Management, Customer Acquisition, Customer Retention, Business Planning, Business Management, Sales Coaching, Business Coaching.

12:30 – 2:00 pm **Lunch**

2:00 – 3:00 pm, Wednesday

**KEYNOTE - Salon Esmeralda I**

**Dr. Lope Hugo Barrero**  
 Associate Professor and Chair  
 Department of Industrial Engineering  
 Pontificia Universidad Javeriana  
 Bogota, Colombia

Dr. Lope H. Barrero is an Associate Professor and Chair, Department of Industrial Engineering at Pontificia Universidad Javeriana, Bogotá, Colombia. Dr. Barrero is a researcher and consultant at the Center for Ergonomics studies of the same university. He is an industrial engineer graduated from Pontificia Universidad Javeriana in Bogota; a Master in Environmental Health with emphasis in risk and epidemiology from Harvard University in Boston, USA; and a Doctor in Environmental Health with emphasis in Ergonomics and Safety also from Harvard University. Dr. Barrero has extensive research experience working in collaboration with researchers locally and in several countries of the world, covering areas such as pathophysiological mechanisms behind musculoskeletal disorders, occupational epidemiology of musculoskeletal disorders, road injury prevention, and burden of occupational disease. As a result of his academic and professional activity he has co-authored more than 30 articles in high-impact scientific journals. Dr. Barrero has been a consultant in several important companies in the Colombian industry in the mining, agricultural and food industry. He is currently leading an initiative to provide consultant services in process and product design to small and medium-size companies of the wood and furniture sector in collaboration with the government of the Bogotá city.

2:00 – 3:00 pm, Wednesday

**KEYNOTE - Salon Esmeralda II**

**Prof. Charles Mbohwa**  
 Professor  
 Faculty of Engineering and the Built Environment (FEBE)  
 University of Johannesburg (UJ)  
 Johannesburg, South Africa

Professor Charles Mbohwa is a Professor in the Faculty of Engineering and the Built Environment. He is an established researcher and professor in the field of sustainability engineering and energy. He was the Chairman and Head of Department of Mechanical Engineering at the University of Zimbabwe

from 1994 to 1997 and was Vice-Dean of Postgraduate Studies Research and Innovation in the Faculty of Engineering and the Built Environment at the University of Johannesburg from 2014 to 2017. He has published more than 350 papers in peer-reviewed journals and conferences, 10 book chapters and three books. He has a Scopus h-index of 11 and Google Scholar h-index of 14. Upon graduating with his BSc Honours in Mechanical Engineering from the University of Zimbabwe in 1986, he was employed as a mechanical engineer by the National Railways of Zimbabwe. He holds a Masters in Operations Management and Manufacturing Systems from University of Nottingham and completed his doctoral studies at Tokyo Metropolitan Institute of Technology in Japan. He was a Fulbright Scholar visiting the Supply Chain and Logistics Institute at the School of Industrial and Systems Engineering, Georgia Institute of Technology, a Japan Foundation Fellow, is a Fellow of the Zimbabwean Institution of Engineers and is a registered mechanical engineer with the Engineering Council of Zimbabwe. He has been a collaborator in projects of the United Nations Environment Programme. He has also visited many countries on research and training engagements including the United Kingdom, Japan, Germany, France, the USA, Brazil, Sweden, Ghana, Nigeria, Kenya, Tanzania, Malawi, Mauritius, Austria, the Netherlands, Uganda, Namibia and Australia. He has had several awards including British Council Scholarship, Japanese Foundation Fellowship, Kubota Foundation Fellowship; Fulbright Fellowship.

3:30 – 4:00 pm Break

4:00 – 5:00 pm, Wednesday **KEYNOTE - Salon Esmeralda I**



**Juan G. Villegas**  
Associate Professor  
Department of Industrial Engineering  
Universidad de Antioquia  
Medellín, Colombia

Juan G. Villegas is Associate professor of the Department of Industrial Engineering at Universidad de Antioquia (Medellín, Colombia). His current research interests include exact and (meta)heuristic methods applied to multi-objective optimization, facility location, and vehicle routing problems. Professor Villegas is member of the research group INCAS (Innovación y gestión de Cadenas de Abastecimiento) of the Universidad de Antioquia. Since the end of 2014 he is the president of the Colombian Operational Research Society (ASOCIO-Asociación Colombiana de Investigación Operativa).

*"An overview of vehicle routing problems arising in the service industry"*

## October 26 (Thursday)

8:00 - 9:00 pm, Thursday **KEYNOTE - Salon Esmeralda I**



**Mr. Gil Lugo**  
President, Lean ISO Experts, Inc.  
President, Green and Sustainable Solutions, Inc.  
Hollywood, Florida, USA

GILBERTO LUGO is an Instructor, Consultant and Auditor with more than forty years of international experience in various industries. Creator of "Integrated Continual Improvement Methodology (iCIM) a methodology to achieve exponential profitable growth.

Mr. Lugo is a Mechanical Engineering and an expert in Lean Enterprise, Theory of Constraints (TOC), Six Sigma and ISO Management Systems. He is a Lead Auditor certified by various international organizations to the newest versions of ISO 9001 (Quality), ISO 14001 (Environmental), OHSAS 18001 (Occupational Health and Safety) and FSC & PEFC Chain of Custody. He is also certified as an Instructor by Exemplar Global (formally RABQSA) in ISO 9001, ISO 14001 and OHSAS 18001 and Florida International University and Palm Beach College in Lean Enterprise.

In addition, Mr. Lugo teaches at several colleges and universities and is a keynote speaker at local, national and international conferences. Mr. Lugo is the past Chairman of the SME (Society of Manufacturing Engineers) Southeast Florida and the past Chairman of ASQ (American Society for Quality) Palm Beach. Mr. Lugo also serves of several Boards of Directors.

### Awards:

For two consecutive years he received the "Above and Beyond Award" for his outstanding contribution to the vitality and prosperity of manufacturing in the US by the USA NIST program Florida MEP.

"IEOM Industry Solutions Award" for his outstanding contributions in the field of engineering incorporating tools such as LEAN, Six Sigma, ISO and Theory of Constraints by the Industrial Engineering and Operations Management Society (IEOM).

US delegate to the ISO Technical Committees 176 (Quality Management System); 207 (Environmental Management System) and 302 (Auditing Management Systems).



9:00 – 10:00 am, Thursday

**KEYNOTE** - Salon Esmeralda I**Professor Donald M. Reimer**

President, The Small Business Strategy Group  
 Detroit, Michigan, USA

Adjunct Faculty – A. Leon Linton Department of Mechanical Engineering  
 Lawrence Technological University  
 Southfield, Michigan, USA

*Innovation, Entrepreneurship and Corporate Intrapreneurship*

Donald M. Reimer is an adjunct faculty at the A. Leon Linton Department of Mechanical Engineering in College of Engineering at Lawrence Tech in Southfield, Michigan. He coordinates the Certificate of Entrepreneurial Engineering Skills. Mr. Reimer holds a Bachelor of Science degree in Industrial Management from Lawrence Technological University and a Master of Arts degree in Political Science from University of Detroit/Mercy. He is a Certified Management Consultant with over 35 years of experience in working with closely-held businesses. He has taught courses in entrepreneurship, strategic management, corporate entrepreneurship and innovation for engineers. Mr. Reimer is a member of the Lawrence Tech Kern Campus Committee, Coordinator of the Lawrence Tech Innovation Encounter. He is faculty Advisor of the Collegiate Entrepreneurs' Organization. Mr. Reimer serves as a Kern Fellow of The Kern Family Foundation, Co-Direct of the Coleman Fellows Program, member of the National Collegiate Entrepreneurs' Organization Faculty Advisory Council and is a member of the American Society of Engineering Education.

He has operated his own consulting company – The Small Business Strategy Group for 23 years. He published numerous articles on small business, entrepreneurship and strategic thinking. He has received several awards and recognition by local, state and federal agencies for his work in entrepreneurship and minority business development. Mr. Reimer served as member of the Minority Economic Development Committee of New Detroit. Mr. Reimer is member of the Small Business Advisory Council of the Detroit Regional Chamber of Commerce. Mr. Reimer is a member of Advisory Board of the Milwaukee Junction Small Business Assistance Center. He is also a member of the Applied Innovation Alliance. Mr. Reimer serves as a KEEN Fellow for The Kern Family Foundation and is a member of United States Association of Small Business and Entrepreneurship.

10:00 - 11:30 am Break

10:30- 11:30 am, Thursday

**KEYNOTE** - Salon Esmeralda I and II**Enrique Sandoval**

Vice President and COO

OCENSA  
 Bogota, Colombia

Ingeniero Civil egresado de la Universidad de Los Andes (Bogotá), Especialización en Operaciones de Producción del Massachusetts Institute of Technology, Maestría en Ingeniería Civil Ambiental de la Universidad de Liverpool (Inglaterra). Ejecutivo Senior con más de 22 años de experiencia en sector Oil & Gas. En 1995 inició en BP Colombia, Casanare en cargos Administrativos Ambientales y Logísticos para Cusiana y Cupiagua. En BP UK, Aberdeen (2002) lideró el Equipo de Planeación Integrada y en BP Russia (2003) como consultor desarrolló procesos de planeación y producción para nuevos negocios. Regresa a BP UK, Aberdeen (2004) como Gerente de Producción. En 2006 en BP Angola se desempeña como Gerente de Operaciones y Gerente de Servicios de Ingeniería Unidad de Negocios de Angola desde Londres, Ulsan Korea y Angola. En 2010 es nombrado Vicepresidente de HSE e Ingeniería de BP Brazil. Regresa nuevamente a BP UK (2011) como Gerente de Renovación

del Mar del Norte. Enrique continúa su carrera profesional como Vicepresidente en STORK AMS Américas (2015) en Bogotá Colombia.

*“Broccol Effect, Building Operations Capacity”*

11:30 am – 12:20 pm, Thursday **KEYNOTE - Salon Esmeralda I and II**



### Dr. Juan Diego Alzate

Fundador de Transprojects (Paris), Smart Grop Asia (China)  
 “Acredited Trainer” en Paris para International Chamber of Commerce (ICC) en Incoterms®.

El Profesor Juan Diego Alzate es “Acredited Trainer” en Paris para International Chamber of Commerce (ICC) en Incoterms®. Experto en Negocios Internacionales, Supply Chain Management (SCMC), Distribución Física Internacional, manejo integral de Proyectos Especiales en Logística Internacional (DFI, Aduanas, Exclusiones tributarias importación), Mercadeo Internacional, Planeación estratégica. Catedrático de posgrados, conferencista internacional en ProColombia, Cámaras de Comercio e ICC en varios países). 20 años de experiencia gerencial en temas de negocios internacionales. Miembro Académico del Supply Chain Council -USA (Apics). Ha desarrollado proyectos como Gerente General de empresas de Freight Forwarding (Transprojects, Megatransport) con tráficos regulares entre Europa, Asia y América. Ejecutor y contratista principal de grandes proyectos de infraestructura (Hidroeléctricas, Termoeléctricas, Taladros Petroleros, Plantas de Tratamientos, tuneladoras, grandes obras civiles, maquinaria pesada, transformadores de alto nivel, extrapesados y extra volúmenes), para varios países en Latinoamérica. Fundador de Transprojects (Paris), Smart Grop Asia (China) y socio principal en Megatransport Projects Logistics. Socio de la firma Maximum Consulting, especializado en derecho internacional de los negocios, y consultoría en negocios internacionales.

12:30 – 1:30 pm, Thursday **KEYNOTE - Salon Esmeralda I and II**



### Dr. Rodolfo Sabonge

Ex Vicepresidente del Canal de Panamá

*“Prospectiva de la logística regional y su impacto en las cadenas de suministro”*

Rodolfo Sabonge especialista en planificación estratégica y prospectiva en temas de infraestructura y proyectos marítimos y logísticos. Se desempeñó hasta el año 2013 como Vicepresidente Ejecutivo de Planificación y Desarrollo Comercial de la Autoridad del Canal de Panamá (ACP). Dirigió la planificación de la transferencia del Canal a la República de Panamá, y posteriormente lideró los estudios de demanda, mercado e impacto económico que justificaron el proyecto de ampliación del Canal de Panamá. Es especialista en inteligencia competitiva, análisis e investigación de mercado y estudios de factibilidad.

Culminó estudios de Ingeniería Mecánica de la Universidad de Norte Dame, realizó estudios de posgrado en Administración de Empresas en la Universidad de Miami, Florida, y tiene un Master en Desarrollo Marítimo de la Facultad de Derecho de la Universidad de Panamá, completó un programa ejecutivo de la Universidad de Stanford en Singapur, y un programa sobre competitividad en la Universidad de Harvard. Durante su trayectoria desarrolló una amplia experiencia a nivel mundial, relacionándose personalmente con los CEOs de las principales navieras y de los principales puertos. En la actualidad funge como Director del Centro de Cooperación en Tecnología Marítima para Latino América de la Universidad Marítima Internacional de Panamá y como asesor en el Instituto de Estudios del Canal y Comercio Internacional de la Universidad de Panamá. Además es consultor internacional en temas marítimos y de logística.

1:30 – 2:15 pm **Lunch**

2:15 – 3:00 pm, Thursday **KEYNOTE - Salon Esmeralda I and II**



### Dr. Gian Paolo Gandini

Director Corporativo de adsorchind Belcorp  
 Gerente general Andina Charer paner Apics

Ingeniero Industrial, EMBA Universidad de los Andes, CPIM Apics. Profesional con más de 23 años de experiencia en Cadena de abastecimiento en compañías multinacionales farmacéuticas, consumo masivo, confitería y cosméticos. Amplia y profunda experiencia en cada uno de los procesos que componen la cadena logística internacional: planeación, administración de inventarios, compras, manufactura, estrategia de abastecimiento, almacenamiento, Innovation sourcing, transporte nacional e internacional. Ha trabajado en compañías tales como FRUCO, Warner Lambert, Pfizer, CABDBURY ADAMS y Actualmente es Director Corporativo de Sourcing en Belcorp.

*“Collaboration as a Key Factor in the Development of the Supply Chain”*

3:00 – 3:30 pm, Thursday

Conference **Awards and Recognitions** - Salon Esmeralda

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3:30 – 4:30 pm, Thursday **Sesión ponencias y Panel: - Salon Esmeralda**

Panel:

Mario Alejandro Rodríguez, Logistics Coordinator at Don Jediondo  
Sebastián Puerta, Chief of International Cargo Operations at LATAM  
Daniel Villa, Regional Operations Director at ClickDelivery

4:30 – 5:00 Break

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5:00 – 5:45, Thursday

**Keynotes International** - Salon Esmeralda



**Dr. Fernando Cámara**

**Director de Logística Jerónimo Martins ARA**

El Dr. Fernando Lopez es Ingeniero agrónomo de la Universidad de Évora, ha participado en diferentes programas de logística y Supply Chain en universidades como Kellogs USA, Cranfield UK y Universidad Católica de Portugal, más de 17 años de experiencia trabajando como coordinador logístico en cadenas de suministro, Supply Chain enfocado en la optimización de procesos de cadenas de distribución. Ha participado en más de 30 proyectos de mejora para la operación logística y procesos de producción en diferentes empresas del universo de Jeronimo Martins.

*“Logística -Supermercados Ara Colombia”*

6:00 – 6:30

Conference Closing and Certificate Delivery



## Committee

### Conference Chairs

Professor Sandra Milena Chacon Sanchez  
Directora del Programa de Administración de Empresas  
Directora programa de Administración en Logística y producción  
Universidad del Rosario  
Bogota, Colombia

Ahad Ali, Ph.D.  
Associate Professor  
Director of Industrial Engineering Programs  
Lawrence Technological University  
Southfield, Michigan, USA

### Technical Chairs

Professor Carlos Franco, School of Management, University del Rosario, Bogota, Colombia  
Professor Victor Jaime Garcia Urdaneta, Universidad del Rosario, Bogota, Colombia

### Global Engineering Education Chairs

Dr. Abu Masud, Boeing Global Engineering Professor, Industrial and Manufacturing Engineering Department, Wichita State University, Kansas, USA  
Dr. Hamid Parsaei, Professor of Industrial and Systems Engineering, Texas A&M University (College Station) and Director of Academic Outreach – Texas A&M University, Qatar

### Program Chair

Dr. Mohammed Khadem, Sultan Qaboos University, Oman

### Publication Chair

Dr. Anwar Rahman, Central Connecticut State University, USA

### Student Chair

Valeria Mendoza Cortes, Universidad del Rosario, Bogota, Colombia

### Regional Academic Committee

Dr. Sepideh Abolghasem, Department of Industrial Engineering, Universidad de los Andes, Bogotá, Colombia  
Dr. Igor Bello, Human Factors and Ergonomics Cathedra, Universidad Simon Bolivar, Caracas, Miranda, Venezuela  
Dr. Susana Boeykens, Faculty of Engineering, University of Buenos Aires, Argentina  
Dr. Eldon Glen Caldwell, University of Costa Rica  
Dr. José R. Deliz Álvarez, Universidad del Turabo, Puerto Rico  
Vladimir Robles Bykbaev, Universidad Politécnica Salesiana, Cuenca, Ecuador  
Dr. Nubia Velasco, Universidad de los Andes, Colombia  
Dr. Bernardo Villarreal, Universidad de Monterrey, Mexico  
Dr. Ing. Humberto R. Álvarez A., Universidad Tecnológica de Panamá, Panama  
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Dr. Chiappetta Jabbour Charbel Jose, University of São Paulo, São Paulo, Brazil / University of Stirling, UK  
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Dr. Eduyn Lopez Santana, Universidad Distrital Francisco José de Caldas, Colombia  
Dr. Germán Mendez Giraldo, Universidad Distrital Francisco José de Caldas, Colombia  
Dr. Jose Ismael Peñaa, Universidad Nacional de Colombia (UNAL), Bogota, Colombia  
Dr. Lindsay Álvarez Pomar, Universidad Distrital Francisco José de Caldas, Colombia  
Dr. Juan Carlos Figueroa García, Universidad Distrital Francisco José de Caldas, Colombia  
Dr. Juan Guillermo Villegar, Universidad de Antioquia, Colombia  
Dr. Gabriel Mauricio Zambrano Rey, Pontificia Universidad Javeriana, Colombia  
Dr. Edgar Hernán Alfonso Lizarazo, Universidad de la Sabana, Colombia  
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Dr. Nubia Velasco, Management School, Universidad de los Andes, Bogota, Colombia

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**Submissions Received from Countries and Territories**

- |               |               |                  |                            |
|---------------|---------------|------------------|----------------------------|
| 1. Argentina  | 11. Finland   | 21. Malaysia     | 31. South Korea            |
| 2. Bangladesh | 12. France    | 22. Mexico       | 32. Spain                  |
| 3. Bolivia    | 13. Germany   | 23. Morocco      | 33. Trinidad and<br>Tobago |
| 4. Brazil     | 14. India     | 24. Nigeria      | 34. Turkey                 |
| 5. Canada     | 15. Indonesia | 25. Oman         | 35. Uganda                 |
| 6. Chile      | 16. Iran      | 26. Pakistan     | 36. United Kingdom         |
| 7. Colombia   | 17. Japan     | 27. Paraguay     | 37. United States          |
| 8. Costa Rica | 18. Jordan    | 28. Peru         | 38. Venezuela              |
| 9. Ecuador    | 19. Kenya     | 29. Saudi Arabia | 39. Zimbabwe               |
| 10. Ethiopia  | 20. Latvia    | 30. South Africa |                            |
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# DISTINGUISHED SPEAKERS – Global Engineering Education

## Wednesday (July 25, 2017)

### Session I: Global Engineering Education

9:00 am – 10:00 pm (WEDNESDAY) - Salon Diamante

**Session Chair:** Dr. Federico Felipe Durán, Instituto Politécnico Nacional México

9:00 - 9:30 (WEDNESDAY)



#### **Dr. Francisco I. Giocondo César**

Professor

Department of Industrial Engineering

Federal Institute of Education, Science and Technology of São Paulo  
(IFSP - Campus Piracicaba)

Professor & Researcher Collaborator

Production Engineering Graduate Program

Campinas State University (FCA – UNICAMP – Campus Limeira)  
Brazil

Dr. Francisco I. Giocondo César is a Mechanical Engineer (UNESP) with M.Sc. and Ph.D. in Production Engineering at the Methodist University of Piracicaba – UNIMEP. Currently doing my post-doctorate in Production Engineering at FCA - UNICAMP. He has certified qualifications in Project Management (PMI) and Green Belt. Dr. Giocondo has been a Professor at the Industrial Department

of Federal Institute of Education, Science and Tecnology of São Paulo (IFSP - Campus Piracicaba) since 2011. He is also a Professor Researcher Collaborator in the Production Engineering Graduate Program at the Campinas State University (FCA – UNICAMP – Campus Limeira) since 2016. Coordinated SB-Lab (Sustainable Business Lab). Dr. Giocondo has 23 years professional experience as an International Project Manager on TRW and Caterpillar Brazil. His current research interests are continuous improvement / lean production / six sigma, industry 4.0 / advanced manufacturing / industrial internet of things, entrepreneurship / business canvas and emergent technologies / disruptive technologies. Dr. Giocondo has collaboration in the following institutions: Collaborative Research Network on Supply Chain 4.0 as Founding member of the SC4, Engineer Association Brazil – Germany (VDI) as a member of the engineering education-working group, National Association of Research and Development of Innovative Companies (ANPEI) as a member of the ICT-Enterprise Interaction Committee (Scientific and Technological Institutions), ASQ – South America – American Society of Quality as Guiding member of the ASQ student branches and Innovation Plant (Usina da Inovação) / AgTechValley) as mentoring startup. He has published numerous research papers in conference proceedings and journals.

9:30 - 10:00 (WEDNESDAY)



#### **Dr. Federico Felipe Durán**

Profesor de Tiempo Completo

Instituto Politécnico Nacional México

Escuela Superior de Ingeniería Mecánica y Eléctrica Unidad Zacatenco  
Mexico

#### *Engineering Accreditation*

Dr. Federico Felipe Durán is professor of computer science at Escuela Superior de Ingeniería Mecánica y Eléctrica (ESIME) of Instituto Politécnico Nacional (IPN) Mexico. His research interests include Artificial Intelligence, Data bases, Natural Language Processing and Engineering Education. Felipe is an electronic and communications engineering for the IPN (1984) and made graduate studies

at Centro de Investigación y Estudios Avanzados in electrical engineering, option Computer Science (1987).

## Session II: Global Engineering Education

2:00 pm – 3:30 pm (WEDNESDAY) - Salon Diamante

**Session Chair:** Dr. Augusto Loureiro da Costa, UFBA - Federal University of Bahia, Brazil

2:00 – 2:30 pm (WEDNESDAY)



### Dr. Augusto Loureiro da Costa

Associate Professor  
Department of Electrical Engineering  
Programa de Post-graduate Engenharia Eletrica  
UFBA - Federal University of Bahia  
Ondina, Salvador - State of Bahia, Brazil  
Visiting Scholar - University of Pennsylvania, USA

Prof. Augusto Loureiro da Costa has his PhD in Electrical Engineering in 2001 at Federal University of Santa Catarina (Brazil), was visiting PhD student at Karlsruhe University (Germany). He is an associate professor at the Electrical Engineering Department (DEE) of Federal University of Bahia (UFBA). He leads the research group of the Robotic Laboratory (LaR). He coordinated CEIA, the Special Committee of Artificial Intelligence of the Brazilian Computer Society (SBC) from 2008 until 2010 and Intelligent Systems Technical Committee of Brazilian Automation Society from 2012 until 2016. He was Visiting Professor at University of Pennsylvania, USA, from July 2012 until June 2013. His main research topics are related to Autonomous Robots and Multi-robots Systems. Currently he is Undergraduate Teaching accessor at Undergraduate Prorectory of Federal University of Bahia.

2:30 – 3:00 pm (WEDNESDAY)



### Mariana Tafur, PhD

Assistant Professor  
School of Education - CIFE  
Los Andes University  
Bogotá, Colombia

Dr. Mariana Tafur is an assistant professor of School of Education at Los Andes University, Bogotá, Colombia. She received her Ph.D. from School of Engineering Education at Purdue University. She has a M.S., education, Los Andes University, Bogota, Colombia; and a B.S., electrical engineering, Los Andes University, Bogota, Colombia. She is a 2010-2013 Fulbright Fellow. Her research interests include engineering skills development, STEM for non-engineers adults, motivation in STEM to close the technology literacy gap, and STEM formative assessment.

3:00 – 3:30 pm (WEDNESDAY)

### Dr. Alberto Un Jan

Dean  
Faculty of Engineering  
Universidad Wiener in Lima  
Peru

Dr. Jan is an engineer in electronics (Universidad Nacional de Ingeniería, UNI, Lima, Peru. He hold an MSc degree in systems engineering (UNI), an MSc degree in information systems in management (Sheffield Hallam University, UK; and a Doctor degree in engineering (Universidad Nacional Federico Villarreal, Lima, Peru. Dr. Jan worked ten years in the development of software for petroleum and geology for PetroPerú and PetroMar, the state owned oil companies. He has been Dean of the Faculty of Engineering at Universidad Wiener in Lima, with two careers: Industrial Engineering and Systems and Informatics Engineering. Under his management, the career of Systems and Informatics Engineering was certified with ISO 9001 in education processes. He knows Peruvian markets for education. Dr. Jan has numerous publication.

## Session III: Global Engineering Education

4:00 pm – 5:30 pm (WEDNESDAY) - Salon Diamante

**Session Chair:** Professor Juan José Encina Cabrera, National University of Asuncion of Paraguay

4:00 – 5:30 (WEDNESDAY)

### Dr. Julio Santisteban

Associate Researcher  
School of Computer Science  
San Pablo Catholic University (UCSP)  
Arequipa – Peru

4:00 – 5:30 (WEDNESDAY)



### Professor Juan José Encina Cabrera

Director of the Department of Electricity  
Faculty of Engineering  
National University of Asuncion of Paraguay  
San Lorenzo – Paraguay

*Use of application software vs. Traditional teaching of Engineering*

Professor Encina is working as an engineer for 17 years ago at the electricity sector, Power Company, National Electricity Administration (ANDE), Institution of Government. He was Head of Quality Management Section from 2001 – 2007 and Head of Billing Department from 2007- 2010 of the National Electricity Administration (ANDE) of Paraguay. Professor Encina was Head of Large Clients and Head of Metropolitan Commercial Division and Lower Chaco of the commercial management. He was Electromechanical Engineer of the Metropolitan Commercial Division and Lower Chaco of the commercial management. He is graduated in Electromechanical Engineer from the Faculty of Engineering of the National University of Asuncion of Paraguay. He was Director of the Department of Electrical Engineering Faculty of the National University of Asuncion. He is pursuing a Masters in Government and Public Management. He has presented lectures and conferences in different universities in Paraguay. He has published a book on "Energy Policy of Paraguay to 2023" that is registered with the copyright. He received several awards from the National University Best Teacher. He is currently the Chairman of the Southern Cone IEEE and IEEE Section president Paraguay, having been a founding member of the section.

4:00 – 5:30 (WEDNESDAY)



### Dr. Fáber D. Giraldo

Assistant Professor  
Faculty of Engineering  
University of Quindío  
Armenia, Circasia, Quindío, Colombia

*Taming global challenges in Software Engineering education: learned lessons in the Quindío region of Colombia*

Fáber D. Giraldo is a System and Computer Engineer from the University of Quindío, Colombia (with a grant from the Ministry of Education of Colombia). He has a Ms. Eng. degree with emphasis on Informatics from EAFIT University, Colombia (with a grant from EAFIT University). He holds a Ph.D.(C) in Informatics from the Universidad Politècnica de València, Spain (with a grant from the National administrative department of Science, Technology and Innovation of Colombia – COLCIENCIAS) and is currently working with the PROS Research Center.

He is a full assistant professor in the Faculty of Engineering at the University of Quindío, He coordinates the Master in Engineering with emphasis on Software Engineering at the University of Quindío. He is a researcher of the Information Systems and Industrial Control research group (SINFOCI) at the University of Quindío, and is recognized as Associate Researcher Type I by COLCIENCIAS. His research interests include software engineering, model-driven engineering, software quality, quality in model-driven engineering, software architecture, technical debt, enterprise architecture, enterprise modelling, HCI and innovation. He has supervised more than 100 undergraduate projects, and He has eight master works under his direction to date. He is also invited professor of some Universities of Colombia for master courses in Software Architecture and Software Process Improvement. Currently He has research projects about quality in model-driven engineering projects, telecare systems for older people, information systems to support agricultural production chains, and serious games to support advertising in public health prevention and teaching process in immunology.



# Thursday (October 26, 2017)

## Session IV: Global Engineering Education

8:00 am – 9:00 am (THURSDAY) - Salon Diamante

**Session Chair:** Dr. Hernán Nina Hanco, National University of San Antonio Abad, Cusco, Peru

8:00 – 8:20 (THURSDAY)

### Dr. Hernán Nina Hanco

Professor, Department of Computer Engineering  
Master in Administration and Systems and Computer Engineering  
National University of San Antonio Abad  
Cusco, Peru



#### *Diagnostic of Industry 4.0 in the South Region of Perú*

Hernán Nina is currently Professor of the Department of Computer Engineering, Master in Administration and Systems and Computer Engineering at the National University of San Antonio Abad of Cusco, Member and Author of ACM (Computer Machinery Association), Member of Electrical and Electronic Engineers of IEEE, Member of the IEEE Computing Society, Certified Educator of Google Level 1, Director of the Professional Academic School of Systems and Computer Engineering of UAP's subsidiary, Cusco 2011-2012. Exercising the profession of computer engineering and systems 20 years ago, most of my activities were in the field of computer education in universities and institutes in southern Peru. The subject of interest is Computer Graphics, Database Systems and Software Development, Cloud Computing and Higher Education.

8:20 – 8:40 (THURSDAY)

### Ignacio Laiton Poveda

Licenciado en Física Universidad Pedagógica Nacional, Bogotá, Colombia  
Especialista en Ciencias, Física, Universidad Nacional de Colombia. Magister en Educación, Universidad de la Salle, Bogotá, Colombia  
Doctor en Educación, tesis Cum Laude, Universidad de Granada, España



Docente de todos los niveles educativos a lo largo de 28 años de trayectoria. Durante los últimos doce años dedicados a la docencia universitaria y los últimos ocho a la investigación sobre la enseñanza de pensamiento a través de las ciencias básicas en Ingeniería, desarrollando varios proyectos de investigación en esta línea. Investigaciones expuestas en diferentes escenarios y congresos entre los que se destacan congresos sobre educación en Ingeniería en La Habana, Cuba, Orlando y Boston, Estados Unidos, Bilbao, España, Munich, Alemania, Bucaramanga y Bogotá, Colombia. Los resultados de los proyectos investigativos sobre la enseñanza de pensamiento en el contexto de las ciencias básicas en Ingeniería, sustentan una sólida base para la charla sobre este ítem, denominada "El desarrollo de pensamiento crítico en estudiantes de ingeniería a través de las ciencias básicas". Se pretende debelar como a través de la aplicación de metodologías desarrolladas por diversos grupos de trabajo a nivel mundial, entre las que se destacan los grupos de la Universidad de Harvard, el grupo Eduthink en España, entre otros, es posible generar y potenciar habilidades de pensador crítico en los estudiantes de primeros semestres de ingeniería. El pensamiento crítico aporta no solo en el sentido profesional del ingeniero, sino que aporta en la calidad del egresado como persona y en su papel como ciudadano.

8:40 – 9:00 (THURSDAY)

### Dr. Lilian Adriana Borges

Senior Lecturer and Research Coordinator  
Pro-vice-chancellor's Office for Research  
UNIDAVI - Universidade para o Desenvolvimento do Alto Vale do Itajaí  
Rio do Sui, Brazil

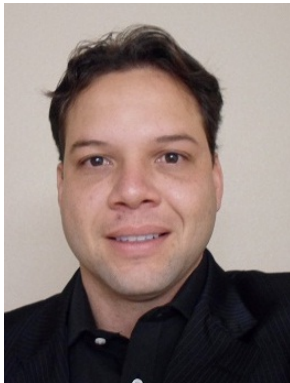
Dr. Lilian Adriana Borges is a Senior Lecturer and Research Coordinator at the Pro-vice-chancellor's office for Research at UNIDAVI, in Brazil. Prior to her academic career, Lilian worked for large multinational companies such as Philip Morris, dealing with imports/exports and operations management. She has 13 years of experience in teaching and research in Brazil and the United Kingdom, having published books and papers in four-star journals and high-profile conferences. Currently, Dr Borges is involved in four projects related to sustainability, which address food supply logistics (FSL) and the measurement of environmental performance in hospitals in Brazil. Recently, Lilian coordinated with her British counterpart the International Workshop "A Pathway to Global Sustainability - role of local food supply logistics in global sustainability", which gathered 30 early career researchers from Brazil and the UK to discuss and address sustainability issues related to the Brazilian FSL networks and supply chains. The event took place in May at UNIDAVI and was funded by the British Council and Newton Fund.

## Session V: Global Engineering Education

9:00 am – 10:00 am (THURSDAY) - Salon Diamante

**Session Chair:** Prof. Eduardo Cardoso Moraes, Federal University of Bahia, Brazil

9:00 – 9:30 (THURSDAY)



### Prof. Eduardo Cardoso Moraes

Federal Institute of Alagoas

Federal University of Bahia, Salvador, Brazil

*Engineering education challenges with advances of Industrial Revolution - Industry 4.0*

**Abstract:** The world is assisting to a rapid evaluation of technologies and one of most impacted area due to high competition is the industrial area. In the academic area is common to say there is a fourth industrial revolution, with several domains of science and technology being strongly developed and, specially, being integrated with each other, allowing to build evolvable complex systems. Internet of Things, virtualization, data analytics, big-data, distributed control, Cyber-Physical. stems and self-organization, amongst others, are playing an important role in this journey. The new engineer will have to handle and adapt himself with this new context. The universities should be aware and adapt the curriculum and mentality. Enterprise Integration is getting cheaper, real-time, mobile and ubiquitous. an important role. This talk will discuss about these technology challenges and opportunities for

Service paradigm is taking educational field.

9:30 – 10:00 (THURSDAY)



### Ing./MFN José Gabriel Suárez Delgado

Aguascalientes, Ags. México

IEEE Aguascalientes Section Chair

*Leadership for High Professional Performance*

MFN/Ing. J. Gabriel Suárez D. is an Electronics & Telecommunications Engineer graduated from the Mexico's National Polytechnic Institute and also holds a Finance and Business Master Degree with Magna Cum Laude from the University of Aguascalientes. Mr. SUÁREZ is an experimented professional in the electronics and electromechanical manufacturing area where he spent 40 years of his life working for the following companies: IBM, Ericson, Magnavox, Xerox and Flextronics. Mr. SUÁREZ worked in many projects especially for Xerox and Flextronics: he sat up the Xerox Mexicana Mfg. Div. Reliability Laboratory, the PCBAs repair area saving the company \$10 million dollars on a yearly basis for 10 years, the 1st PCBA line, the CO2 cleaning area to clean copiers to be

remanufactured, the scrap recycling area generating multiple benefits for the company and the Aguascalientes State community, etc. With Flextronics, he and his multinational team developed the Flextronics BCP (Business Continuity Plan) and was Flextronics Global Lead for this industry practice, responsible for the implementation of the electronics industry RoHS (Restriction of Certain Hazardous Substances) requirement for the Flextronics sites in the Americas, responsible also to implement the Social and Environmental Program for the Flextronics Americas sites and also with a multinational teams developed the Flextronics Drive Safe Program and the Sustainable Packaging Program. Presently, Mr. SUÁREZ is the IEEE Aguascalientes, Mexico Section Chair, Aguascalientes CONALEP's (one of the biggest mid technical school systems in Mexico) Liaison President, founder of the Aguascalientes CANIETI (National Electronics, Telecommunications & Information Technology Chamber) and Business Topics Professor at the UTR (El Retoño Technological University) 1st. BIS (Bilingual International and Sustainable) university in Mexico.

## Session VI: Global Engineering Education

4:30 pm – 5:30 pm (THURSDAY) - Salon Diamante

**Session Chair:** Dr. Vitor M. Caldana, IFSP - Instituto Federal de São Paulo - Campus Sorocaba, Brazil

4:30 – 5:00 pm (THURSDAY)



### Dr. Vitor M. Caldana

Professor

Depto. de Eletroeletrônica

IFSP - Instituto Federal de São Paulo - Campus Sorocaba

Santana de Parnaíba, SP, Brazil

*An Analysis of Engineering Education impact on Brazil's Micro Regions*

Vitor Mendes Caldana is a Professor at Instituto Federal de São Paulo at the Sorocaba campus for Electronics. He graduated in Electronic Engineering at Mackenzie University in 2004 and obtained his Master of Science (M.Sc.) in Industrial Engineering in 2017. He worked in the industry for 15 years before entering in the teaching career. He has published articles in international conferences and

journals. His M.Sc. research was based on the understanding of Engineering Education and the impacts in microregions. He is currently in the early stages of developing his Ph.D. project.

5:00 – 5:30 pm (THURSDAY) – **INDUSTRY SOLUTIONS**



### Antonio J. Jara

Adjoint Scientifique

University of Applied Sciences Western Switzerland (HES-SO)

Vice-Chair of the IEEE Communications Society Internet of Things Technical Committee

*Digitalization of Cyber Physical Processes with FIWARE*

Antonio J. Jara; Adjoint Scientifique at the University of Applied Sciences Western Switzerland (HES-SO), Founder at HOP Ubiquitous S.L. ([www.hopu.eu](http://www.hopu.eu)) and vice-chair of the IEEE Communications Society Internet of Things Technical Committee. He did his PhD (Cum Laude) at the Intelligent Systems and Telematics Research Group of the University of Murcia (UMU) from Spain in 2013. He received two M.S. (Hons. - valedictorian) degrees. Since 2007, he has been working on several projects related to IPv6, Security and WSNs in automation and healthcare. He is especially focused on the design and development of new protocols for security and mobility for Future Internet of things, which was the topic of his Ph.D. He did the transfer of the results from his PhD around Security in the American Company United Technologies. Nowadays, he continues working on IPv6 technologies for the Internet of Things In areas such as security, heterogeneity integration and the application of IoT in sectors such as industry 4.0, energy, and smart cities. He has also carried out a Master in Business Administration (MBA). He has published over 100 international papers (>2000 citations, h: 25), As well he holds several patents in the IoT domain. Finally, he has participated in several European Projects about Internet of Things (networking, security and intelligence distribution – fog computing) and applied Internet of Things (energy, industry 4.0 and Smart Cities).



INTERNATIONAL FEDERATION OF  
ENGINEERING EDUCATION SOCIETIES

### The International Federation of Engineering Education Societies (IFEES)

IFEES was founded in 2006, at the American Society for Engineering Education's Global Conference in Rio de Janeiro, Brazil. Engineering education leaders from around the world had gathered the previous year to explore to possibilities of creating an international organization for engineering education societies. IFEES is proud to be leading the effort in connecting the world's engineering education societies and leveraging our members' collective strengths in order to improve engineering education worldwide. IFEES members represent a diversity not only in cultures, but in engineering education interests, from quality assurance to engineering education, from pedagogy to the role of technology in the classroom. IFEES member societies are expanding their global reach, and new relationships and collaborations are created all the time through IFEES' global network.

Through the collaboration of its member societies, IFEES will work to establish effective engineering education processes of high quality around the world to assure a global supply of well-prepared engineering graduates. IFEES will strengthen member organizations and their capacity to support faculty and students. It will attract corporate participation, helping to connect engineering graduates with international corporations that have a pressing need for well-trained engineers who can work in a global environment. IFEES will also enhance the ability of engineering faculty, students and practitioners to understand the varied cultures of the world and work effectively in them.



GLOBAL ENGINEERING  
DEANS COUNCIL

### Global Engineering Deans Council (GEDC)

Recognizing the global need for a world-wide forum of engineering deans and rectors, a group of over 20 leaders of engineering education institutions and corporate partners first met in Rio de Janeiro, Brazil, on 9 October 2006 and in Istanbul, Turkey, on 30 September 2007. Encouraged by IFEES and modeled after the ASEE Engineering Deans Council (EDC), the Global Engineering Deans Council (GEDC) was created on 9 May 2008 in Paris, France. The main goal of the GEDC is to provide engineering deans and rectors with ideas, tools, and

“best” practices necessary to become innovative leaders of engineering education

The GEDC holds annual meetings surrounding four strategic objectives: Institutional Leadership, Curriculum Leadership, Policy Leadership and Accreditation Leadership. Accommodating for its diverse membership, the GEDC has met in Argentina, Brazil, Turkey, France, Singapore, People's Republic of China, United States of America, Hungary, the United Arab Emirates, and will meet in Italy and Australia in 2015.





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# Program Matrix

## October 25 (Wednesday)

Hora	Salón Esmeralda	Salón Diamante	Salón Turquesa	Salón Amatista	Salón Hade	Rubi	Salón Topacio
7:00	Registration / Registro asistentes, ponentes e invitados						
8:00	Welcome Address – Rector, University of Rosario / Bienvenida a Cargo del Rector José Manuel Restrepo						
8:10	Welcom Address. Dean Management school / Bienvenida a Cargo del Decano Alejandro Cheyne						
8:20	KEYNOTE – Mr.Pedro Jose Fernandez Ayala, Vicepresidente de innovación e inteligencia Sectorial Procolombia						
9:00	KEYNOTE: <b>Esmeralda I</b> Fabián Escudero Jessurum Gerente Comercial. CELPA Zona Franca Permanente S.A.	Global Engineering Education	Undergraduate Student Paper Competition	Supply Chain Management	Lean and Six Sigma	Operations Research and Management	Modeling and Simulation
9:00	KEYNOTE: <b>Esmeralda II</b> Jorge Enrique Rojas Rodriguez Profesor Asistente de Ingeniería industrial Universidad del Bosque						
9:45	Break						
10:15	Mr. Edgar Higuera Gomez, Gerente de Logística, Transporte e Infraestructura de la ANDI - Salón Esmeralda “Retos y Oportunidades del Transporte y la Logística”						
11:15	Leonardo E. Wilinski, VP South America Channel, SIEMENS Industry Software, Digital Factory Division, Product Lifecycle Management, Sao Paulo, SP, Brazil. Salón Esmeralda						
12:30	Lunch						
2:00	KEYNOTE: Mr. Lope Hugo Barrero, Associate Professor and Chair – Dept. IE, Pontificia Universidad Javeriana, Bogotá. <b>Esmeralda I</b> KEYNOTE: Prof. Charles Mbohwa, Professor. University of Johannesburg, South Africa. <b>Esmeralda II</b>	Global Engineering Education	Undergraduate Student Paper Competition	Supply Chain Management	Lean and Six Sigma	Operations Research & Management	Project Management
3:30	Break						
4:00	KEYNOTE: Dr. Juan G. Villegas, Associate Professor Dept. of Industrial Engineering Universidad de Antioquia Medellín, Colombia.	Global Engineering Education	Graduate Student Paper Competition	Supply Chain Management	Quality Control and Management	Healthcare Systems	Sustainability and Green Systems
5:30	Poster Session						

# Program Matrix

## October 26 (Thursday)

Hora	Salón Esmeralda	Salón Amatista	Salón Turquesa	Salón Topacio	Salón Rubi	Salón Hade	Salón Zafiro	
7:00	Registration / Registro asistentes, ponentes e invitados							
8:00	KEYNOTE - Mr. Gil Lugo, President, Lean ISO Experts, Inc., USA	Global Engineering Education	Sustainability and Green Systems	Logistics Management	Production Planning and Management	Manufacturing and Design	Inventory Management	
9:00	KEYNOTE: Prof. Don Reimer, President, The Small Business Strategy Group, USA	Global Engineering Education	Sustainability and Green Systems	Logistics Management	Decision Sciences	Sustainability and Green Systems	Automation and Control	
10:00	Break							
10:30	Sr. Enrique Sandoval, Vicepresidente de Operaciones de OCENSA, Bogota - Salón Esmeralda "Efecto Broccoli, construcción de capacidad de operaciones"							
11:30	Mr. Juan Diego Alzate, Fundador de Transprojects (Paris), Smart Grop Asia (China) - Salón Esmeralda. "El futuro de la distribución basado en 10 Mega-Tendencia de la Supply Chain"							
12:30	Mr. Rodolfo Sabonge, Ex Vicepresidente del Canal de Panamá - Salón Esmeralda "Prospectiva de la logística regional y su impacto en las cadenas de suministro"							
1:30	Lunch							
2:15	Mr Gian Paolo Gandini, Director Corporativo de Compras Belcorp - Salón Esmeralda "La Colaboración como Clave en el desarrollo de La Cadena de Abastecimiento"							
3:00	Conference Awards and Recognitions - Salón Esmeralda							
3:30	Sesión ponencias y Panel: - Salón Esmeralda: Diana González Díaz Directora de mercadeo de <b>Don Jediondo</b> Sebastian Puerta Mantilla Jefe de Operaciones Carga Internacional <b>Latam</b> Daniel Villa Camacho Chief Operating Official of Colombia, Perú and Ecuador <b>Domicilios.com</b>							
4:30	Break							
5:00	KEYNOTE: Dr. Fernando Cámara Director de Logística Jerónimo Martins ARA.	Global Engineering Education –	Facilities Planning & Human Factors – Esmeralda II	Engineering Education	Logistics Management	Case Studies	Engineering Management	Information Technology / E-Business and E-Commerce
6:00	Conference Closing and Certificate Delivery							

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# TECHNICAL PROGRAM

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## October 25, 2017 (Wednesday)

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October 25 (Wednesday)

7:00 – 8:00 Registration / Registro asistentes, ponentes e invitados

8:00 – 8:20 **Welcome Address** - Salon Esmeralda I & II

**Bienvenida a Cargo del Rector José Manuel Restrepo**  
University of Rosario, Bogota

**Alejandro Cheyne**  
Dean School of Business

8:20 - 8:50 **KEYNOTE** - Salon Esmeralda I & II

**Dr. Pedro Jose Fernandez Ayala**  
Vicepresidente de innovación e inteligencia  
Sectorial PROCOLOMBIA

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## 9:00 – 10:00, October 25 (Wednesday)

9:00 - 9:45 **Keynote:** - Salon Esmeralda I

**Jorge Enrique Rojas Rodriguez**  
Asistent Professor of Industrial Engineering - Universidad del Bosque

*"Application of Operations Investigation to a Model of Assignment towards Typical Processes in a Supply Chain"*

9:00 - 9:45 **Keynote:** - Salon Esmeralda II

**Fabián Escudero Jessurum**  
Gerente Comercial. CELPA - Zona Franca Permanente S.A

*"Buenaventura, regional logistics power"*

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9:00 – 10:00, October 25 (Wednesday)	<b>Global Engineering Education</b>	Salon Diamante
	<b>Session Chair:</b> Dr. Federico Felipe Durán, Instituto Politécnico Nacional México	

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9:00 - 9:30 (WEDNESDAY)

**Dr. Francisco I. Giocondo César**  
Professor  
Department of Industrial Engineering  
Federal Institute of Education, Science and Technology of São Paulo  
(IFSP - Campus Piracicaba)  
Professor & Researcher Collaborator  
Production Engineering Graduate Program  
Campinas State University (FCA – UNICAMP – Campus Limeira)  
Brazil

9:30 - 10:00 (WEDNESDAY)

**Dr. Federico Felipe Durán**

Profesor de Tiempo Completo  
Instituto Politécnico Nacional México  
Escuela Superior de Ingeniería Mecánica y Eléctrica Unidad Zacatenco  
Mexico

*Engineering Accreditation*

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9:00 – 10:00, October 25 (Wednesday)      **Undergraduate Student Paper Competition**      **Salon Turquesa**  
**Session Chair:** Prof. Don Reimer, Lawrence Tech, Michigan, USA

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**ID 3    The Implementation Model of Smart Logistic Transport: Engineering Economic Analysis of Internet of Things (IoT)**  
 Muhammad and Rahmat Nurcahyo, Industrial Engineering (IE) Department, University of Indonesia, Depok, West Java, Indonesia

**ID 70    Technical Assistance In Documentation And Updating Of Instructive Supported In The “S.M.E.D”. System for the Format Change in the Packaging Line of the Industria Licorera Del Cauca**

Nora Fernanda Arciniegas Sánchez and Diego Espinosa, Faculty of Engineering, Fundación Universitaria de Popayán, Popayán, Colombia

Juan Manuel Segura Mosquera, Industria Licorera del Cauca, Popayán, Colombia

Jaime Humberto Mendoza Chacón, Faculty of Engineering, Fundación Universitaria de Popayán, Popayán, Colombia

**ID 282 Optimization of times to improve the perception of the attention to the user in the HUM (Méderi)**

Valeria Mendoza Cotes and Lina Maria Garcia, Logistic and Production Management, Universidad del Rosario, Bogota, Colombia

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9:00 – 10:00, October 25 (Wednesday)      **Supply Chain Management**      **Salón Zafiro**  
**Session Chair:** Oscar Fabián Velásquez Rodríguez, Universidad Nacional de Colombia, Bogotá, Colombia

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**ID 78    Stochastic inventory control and distribution of blood products**

Andrea Pirabán Ramírez, Université de Technologie de Troyes, Troyes, France

Nacima Labadie, ICD-LOSI (UMR-STMR CNRS 6279), Université de Technologie de Troyes, Troyes, France

**ID 103    Optimization design of Closed-Loop supply chain based on stochastic analysis and SMART**

Carlos A. Marino, CENTRUM Graduate Business School, Pontificia Universidad Católica, Lima, Peru

**ID 55    Trade-offs between environmental and economic objectives in Closed-Loop Supply Chains**

Oscar Fabián Velásquez Rodríguez, Universidad Nacional de Colombia, Bogotá, Colombia

Carlos Eduardo Moreno Mantilla, Systems and Industrial Engineering Dept., Universidad Nacional de Colombia, Bogotá, Colombia

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9:00 – 10:00, October 25 (Wednesday)      **Lean and Six Sigma**      **Salon Rubi**  
**Session Chair:** Diego Martínez, University of Monterrey, México

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**ID 44    Enhancing Competitiveness of Ethiopian Metal and Steel Industries through Lean Manufacturing**

Shimelis Tilahun and Daniel Kitaw, Addis Ababa Institute of Technology, Ethiopia

**ID 77    An exploratory research about lean manufacturing implementation and behaviors of multi-level leadership**

Guilherme Luz Tortorella, Diego de Castro Fettermann and Carlos Ernani Fries, Department of Production and Systems Engineering, Federal University of Santa Catarina, Campus Trindade, C.P. 476, Florianópolis, SC 88040-900, Brazil

**ID 98    Lean Six Sigma for the Improvement of Services in Higher Education Institutions**

David Rodrigo Guerrero Moreno and Claudia Cristina Bocanegra Herrera, Facultad de Ingeniería, Universidad Santiago de Cali, Calle 5 # 62-00 Barrio Pampalinda, Colombia



9:00 – 10:00, October 25 (Wednesday)

**Operations Research and Management****Salon Hade****Session Chair:** Hiroyuki Goto, University of California at Santa Barbara, USA**ID 2 Game of Patterns: an approach for solving mixed integer nonlinear optimization problems**

Ebert Brea, Department of Electronic, Computing and Control, School of Electrical Engineering, Faculty of Engineering, Central University of Venezuela, Caracas 1053, Venezuela

**ID 26 The Stochastic Location-Inventory Replenishment Problem at a Supermarket Chain**

Kizito Mubiru, Makerere University, Uganda

**ID 64 Exact Optimal Solution of a Critical Chain Project Management Problem**

Hiroyuki Goto and Alan Murray, Department of Geography, University of California at Santa Barbara, UC Santa Barbara, Santa Barbara, CA 93106, USA

**ID 108 Wind farm maintenance scheduling model and solution approach**Andres Felipe Gutierrez, Facultad de Administración, Universidad de los Andes, Bogotá DC, Colombia, Laboratoire d'Optimisation des Systèmes Industriels (LOSI), Université de Technologie de Troyes, Troyes, France  
Laurence Dieulle, Laboratoire de Modélisation et de Sûreté des Systèmes, Université de Technologie de Troyes, Troyes, France  
Nacima Labadie, Laboratoire d'Optimisation des Systèmes Industriels (LOSI), Université de Technologie de Troyes, Troyes, France  
Nubia Velasco, Facultad de Administración, Universidad de los Andes, Bogotá DC, Colombia**ID 105 Queuing Network Analysis and Optimal Bed Determination: An Evaluation of Nigerian University Teaching Hospital Emergency Department**

Obamiro John Kolade, Department of Business Administration, Lagos State University, Ojo, Nigeria

9:00 – 10:00, October 25 (Wednesday)

**Modeling and Simulation****Salon Topación****Session Chair:** Iván Santelices Malfanti, Universidad del Bío-Bío, Concepción, Chile**ID 31 Improve the product design process, with CFD and DOE approach**Julián Ignacio López Arcos, Department of Industrial Engineering, Universidad de San Buenaventura, Cali, Valle, Colombia  
Ramiro Gustavo Camacho, Institute of Mechanical Engineering, Federal University of Itajubá, Itajubá, MG, Brazil  
Paulo Henrique Da Silva Campos, Carlos Eduardo Sanches Da Silva and Anderson Paulo de Paiva, Institute of Production Engineering and Management, Federal University of Itajubá, Itajubá, MG, Brazil**ID 56 Optimal Layout Design by Line Balancing using Simulation Modeling**Aregawi Yemane and Serajul Haque, Bahir dar institute of technology, industrial engineering, Bahir Dar, Ethiopia  
Iván Santelices Malfanti, Universidad del Bío-Bío, Departamen to Ingeniería Industrial, Concepción, Chile**ID 68 Bottleneck Identification Using Time Study and Simulation Modeling Of Apparel Industries**Aregawi Yemane and Serajul Haque, Bahir Dar institute of technology, industrial engineering, Bahir Dar, Ethiopia  
Iván Santelices Malfanti, Universidad delBío-Bío, DepartamentoIngeniería Industrial, Concepción, Chile**ID 220 Implementation of a metaheuristic in a simulation model for programming in a port system**

Daniel Mendoza, Jairo Rangel and Zulay Sarmiento, Industrial Engineering Department, Universidad del Atlántico, Km 7 antigua vía a Puerto Colombia, Barranquilla, Colombia

10:00 – 10:15 am - Break

10:15- 11:15 **KEYNOTE** – Salon Esmeralda I & II**Dr. Edgar Higuera Gomez**

Gerente de Logística, Transporte e Infraestructura de la ANDI

*“Challenges and Opportunities in Transportation and Logistics”*

11:15 – 12:30 **SIEMENS KEYNOTE** - Salon Esmeralda I & II

**Leonardo E. Wilinski**

VP South America Channel  
Siemens Industry Software  
Digital Factory Division, Product Lifecycle Management  
Sao Paulo, SP, Brazil

12:30 – 2:00 Lunch

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**2:00 – 3:30 pm, October 25 (Wednesday)**

2:00 – 3:00 pm, **Wednesday** **KEYNOTE** - Salon Esmeralda I

**Dr. Lope Hugo Barrero**

Associate Professor and Chair, Department of Industrial Engineering  
Pontificia Universidad Javeriana  
Bogota, Colombia

*"Health and productivity: One option strategic to sustainability"*

2:00 – 3:00 pm, **Wednesday** **KEYNOTE** - Salon Esmeralda II

**Prof. Charles Mbohwa**

Professor  
Faculty of Engineering and the Built Environment (FEBE).  
University of Johannesburg (UJ)  
Johannesburg, South Africa

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2:00 – 3:30 pm, October 25 (Wednesday) **Global Engineering Education** Salon Diamante

**Session Chair:** Dr. Augusto Loureiro da Costa, UFBA - Federal University of Bahia, Brazil

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2:00 – 2:30 pm (WEDNESDAY)

**Dr. Augusto Loureiro da Costa**

Associate Professor, Department of Electrical Engineering  
Programa de Post-graduate Engenharia Eletrica  
UFBA - Federal University of Bahia  
Ondina, Salvador - State of Bahia, Brazil  
Visiting Scholar - University of Pennsylvania, USA

2:30 – 3:00 pm (WEDNESDAY)

**Mariana Tafur, PhD**

Assistant Professor  
School of Education - CIFE  
Los Andes University  
Bogotá, Colombia

3:00 – 3:30 pm (WEDNESDAY)

**Dr. Alberto Un Jan**

Dean  
Faculty of Engineering  
Universidad Wiener in Lima  
Peru

2:00 – 3:30 pm, October 25 (Wednesday)

**Undergraduate Student Paper Competition**

Salon Turquesa

**Session Chair:** Prof. Don Reimer, Lawrence Tech, Michigan, USA**ID 87 WEEE Management: Approach of Reverse Logistics at Higher Education Institutions**

Luis Augusto Valencia Rivera and Claudia Cecilia Peña Montoya, Engineering Faculty, Universidad Santiago de Cali, Colombia

**ID 90 Propuesta De Un Modelo Multicriterio Para Seleccionar Estrategias De Logística Inversa De Residuos Hospitalarios Aprovechables**

Paola Andrea Caicedo Jiménez and Vivian Lorena Chud Pantoja, Ingeniería industrial, Universidad Santiago de Cali, Santiago de Cali, Valle del Cauca

**ID 92 Increase of the number of internal trips in a steel company: A case of study.**

Ricardo Adrián Cisneros-Hernández, Diana Paola Morales Mata, Erick Humberto Garza – Espinosa and Jenny Díaz-Ramírez, Engineering Department, Universidad de Monterrey, San Pedro Garza García, 66238, N.L., Mexico

**ID 95 Inventory supply model for perishable products. The Calicarnes case**Ivan Daniel Mesias and Fernando Alberto Osorio, Civil and Industrial Engineering Department, Pontificia Universidad Javeriana – Cali, Cali, Colombia  
Jenny Díaz-Ramírez, Engineering Department, Universidad de Monterrey, San Pedro Garza García, 66238, N.L. Mexico**ID 89 Increment in on-time deliveries of mouldings to improve customer service of Fabricacion de Maquinas S.A. De C.V.**

Diego Martínez, Sergio Cabello y Donaldo Hernández, Graduates of Industrial Engineering, University of Monterrey, México

2:00 – 3:30 pm, October 25 (Wednesday)

**Supply Chain Management**

Salón Zafiro

**Session Chair:** Claudemir L. Tamarico, São Paulo State University (UNESP), Guaratinguetá, SP, Brazil**ID 212 Modelo de gestión de riesgos logísticos. Aplicación Ingenio Azucarero**

Angela María Caicedo Acosta y Federico Pereira Sousa and Gloria Mercedes López Orozco, Facultad de Ingeniería - Departamento de Operaciones y Sistemas, Universidad Autónoma de Occidente, Cali – Jamundí, 760030, Cali-COLOMBIA

**ID 230 Sustainability challenges in the food supply chains of developing countries: a systematic review of literature**Lilian Adriana Borges, Pro-vice-chancellor's Office for Research, UNIDAVI, Rio do Sul, Brazil  
Usha Ramanathan, College of Business Law & Social Sciences, Nottingham Business School, Nottingham Trent University, Nottingham, United Kingdom**ID 235 A cost-effective collaborative inventory management strategy between non-competitor companies; a case study**

Carlos Otero and Rene Amaya, Department of Industrial Engineering, Universidad del Norte, Barranquilla, Colombia

**ID 244 Plastic Solid Waste Recycling and the Significance of Reverse Logistics in Developing Economies**

Bupe G Mwanza and Charles Mbohwa, School of Engineering Management, University of Johannesburg, South Africa

**ID 252 The impact of risk management process on supply chain performance: An exploratory case study in a beverage manufacturing organization**

N. Sukdeo, Department of Quality and Operations Management, University of Johannesburg, Gauteng, South Africa

**ID 115 Multi-Criteria Analysis of Advanced Planning System Implementation**

Claudemir L. Tamarico, Valério A. P. Salomon and Fernando A. S. Marins, São Paulo State University (UNESP), Engineering School, Campus Guaratinguetá, Guaratinguetá, SP, 12516-410, Brazil

2:00 – 3:30 pm, October 25 (Wednesday)

**Lean and Six Sigma****Salon Rubi****Session Chair:** Muhammad, Universitas Indonesia**ID 226 Modelo Conceptual Para El Desarrollo De Estudio Del Trabajo Bajo Enfoque Lean En Sistemas De Servuccion**

Hernando Garzon Saenz, Jose Manuel Solana Garzon, Gustavo Adolfo Ortiz Piedrahita and Jorge Andres Cogollo Sepulveda, Grupo de investigación CIPTEC- Facultad de Ingenierías – Programa de Ingeniería Industrial - Fundación Universitaria, Tecnológico Comfenalco Cartagena, Cartagena de Indias –Colombia

**ID 256 Implementation of Lean Manufacturing System to Eliminate Wastes on the Production Process of Line Assembling Electronic Car Components with WRM (Waste Relationship Matrix) and VSM (Value Stream Mapping) Method**

Muhammad and Yadrifil, Department of Industrial Engineering (IE UI), Faculty of Engineering, Industrial Engineering Department, Fakultas Teknik - Universitas Indonesia

**ID 284 Strengthening operations management in Zimbabwean film industry**

Anup Pradhan and Fortunate Tatenda Mauryakufa, Department of Operations and Quality Management Engineering, University Of Johannesburg, South Africa

2:00 – 3:30 pm, October 25 (Wednesday)

**Operations Research and Management****Salon Hade****Session Chair:** Nita Sukdeo, University of Johannesburg, Gauteng, South Africa**ID 213 Solución al problema de envasado en pesadoras multicabezales mediante la optimización matemática**

Alexander Pulido-Rojano, Departamento de Ingeniería Industrial, Universidad Simón Bolívar, Barranquilla, Colombia  
J. Carlos García-Díaz, Departamento de Estadística e Investigación Operativa Aplicadas y Calidad, Universitat Politècnica de València, Camino de Vera, s/n. Valencia, Spain

**ID 264 An Investigation on the Causes of Derailments in the Locomotive Industry**

Magano Molefe, M. Molefe Department of Quality and Operations Management, University of Johannesburg, Bunting Road, Auckland park PO Box 2006, RSA

**ID 43 Seru Production System in Japan**

Ikou Kaku, Department of Environmental Management, Tokyo City University, Yokohama, Japan

**ID 253 The effect of the working environment on employee satisfaction and productivity: a case study in a clothing manufacturing factory**

Nita Sukdeo, Department of Quality and Operations Management, University of Johannesburg, Gauteng, South Africa

**ID 262 Future center for energy sector of Ostrobothnia! A smart choice towards organizational and societal innovative improvement through proactive leadership**

Syeda Asiya Zenab Kazmi, Univeristy Vaasa, Finland

2:00 – 3:30 pm, October 25 (Wednesday)

**Project Management****Salon Topación****Session Chair:** Ghazi Moh'd Al-Abbadi, Coventry University, UK**ID 101 Will Agile Project Management Become The Future Of Non-It Sectors?**

Arya S. and Mridula Sahay, Amrita School of Business, Amrita Vishwa Vidyapeetham University, Coimbatore, T.N., India

**ID 221 Implementing a Digital Training**

Gibran Lamas, Freelance (Project Manager Jr.), Mexico

**ID 239 Project critical path assessment in production environments by a new interval-valued fuzzy decision method**

Y. Dorfeshan and S.M. Mousavi, Department of Industrial Engineering, Faculty of Engineering, Shahed University, Tehran, Iran  
A. Siadat, LCFC, Arts et Métier Paris Tech, Centre de Metz, Metz, France



**ID 260 Priority Rules Performance Analysis as a GA Initial Population for RCMPSP**

Germán Eduardo Giraldo González, César Miguel Ordóñez Calderón, Diego Camilo Aristizabal González and Jonathan Xavier Castellanos Trujillo, Unidad de Proyectos, Escuela Colombiana de Ingeniería Julio Garavito, Bogotá, AK.45 No.205-59 (Autopista Norte), Colombia

**ID 215 An Examination of the Motivational Factors Affecting Workers Productivity in the Jordanian Construction Industry**

Ghazi Moh'd Al-Abbadi and George Agyekum-Mensah, School of Energy, Construction and Environment, Coventry University, Coventry, CV1 5FB, UK

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3:30 – 4:00 Break

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### 4:00 – 5:30, October 25 (Wednesday)

4:00 – 5:00, October 25 (Wednesday)

**KEYNOTE:** Salon Esmeralda I

**Dr. Juan G. Villegas**

Associate Professor  
Department of Industrial Engineering  
Universidad de Antioquia  
Medellín, Colombia

*"An overview of vehicle routing problems arising in the service industry"*

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4:00 – 5:30, October 25 (Wednesday)

**Global Engineering Education**

Salon Diamante

**Session Chair:** Professor Juan José Encina Cabrera, National University of Asuncion of Paraguay

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4:00 – 5:30 (WEDNESDAY)

**Dr. Julio Santisteban**

Associate Researcher  
School of Computer Science  
San Pablo Catholic University (UCSP)  
Arequipa – Peru

4:00 – 5:30 (WEDNESDAY)

**Professor Juan José Encina Cabrera**

Director of the Department of Electricity  
Faculty of Engineering  
National University of Asuncion of Paraguay  
San Lorenzo – Paraguay

*Use of application software vs. Traditional teaching of Engineering*

4:00 – 5:30 (WEDNESDAY)

**Dr. Fáber D. Giraldo**

Assistant Professor  
Faculty of Engineering  
University of Quindío  
Armenia, Circasia, Quindío, Colombia

4:00 – 5:30, October 25 (Wednesday)

**Graduate Student Paper Competition****Salon Turquesa****Session Chair:** Prof. Don Reimer, Lawrence Tech, Michigan, USA**ID 91 Operation Management in Hospitals: A Literature Review**

Riccardo Maccaferri Gonzalez, Fernando Gonzalez Aleu, Luz Maria Valdez and Jenny Diaz Department of Engineering, Universidad de Monterrey, San Pedro Garza García, NL 66238, México

**ID 117 Competencies to adopt Industry 4.0 for operations management personnel at automotive parts suppliers in Nuevo Leon**

Milagros Díaz Bermúdez, Academic Coordinator of Engineering Management Program, Univ. of Monterrey, Nuevo Leon, Mexico  
Benito Flores Juárez, Dean of the School of Engineering, University of Monterrey, Nuevo Leon, Mexico

**ID 84 Success Factors Comparison in the Logistics Clusters Located in East Asia-Pacific, North America, and Western Europe. A Systematic Literature Review**

Rubén Rendón Benavides, Bachelor's Student in Industrial and Systems Engineering, Universidad de Monterrey, San Pedro Garza García, NL, 66238, Mexico  
Teresa Verdusco-Garza, Division of Engineering & Technologies, Department of Engineering, Universidad de Monterrey, San Pedro Garza García, NL, 66238, Mexico

4:00 – 5:30, October 25 (Wednesday)

**Supply Chain Management****Salón Zafiro****Session Chair:** Petri Helo, University of Vaasa, Finland**ID 261 A linear programming model for integrated baked production and distribution planning with Raw material and routing consideration**

Magano Molefe, Department of Quality and operations Management, University of Johannesburg, Auckland Park, RSA

**ID 265 Supply Chain Quality Management SCQM: Understanding how it integrates into the service and manufacturing sectors. Case studies in a construction and a food companies**

Andres Lopez Astudillo, Department of Industrial Engineering, Icesi University, Cali, Valle del cauca, COL  
Melenys Hinestroza Moreno, Department of Quality Management, LATCO, Cali, Valle del cauca, COL  
Edilma Liliana Chacon Tabares, Department of Quality Management, Harinera del Valle, Cali, Valle del cauca, COL  
Francisco Balbastre Benavent, Juan José Renau Piqueras Dept. of Management, Valencia University, Valencia, Valencia, ESP  
Ana Redondo Cano, Juan José Renau Piqueras Department of Management, Valencia University, Valencia, Valencia, ESP

**ID 275 Cloud-based Manufacturing Ecosystem – Application Development**

Petri Helo, Valeriia Boldosova and Rayko Toshev, Networked Value Systems, University of Vaasa, Vaasa, Finland

**ID 246 Drivers of Reverse Logistics in the Plastic Industry: Producer's Perspective**

Bupe G Mwanza and Charles Mbohwa, School of Engineering Management, University of Johannesburg, South Africa

4:00 – 5:30, October 25 (Wednesday)

**Quality Control and Management****Salon Rubi****Session Chair:** Gerardo Avendano. EAN University, Bogota, Colombia**ID 53 Minimización de tiempos y costos en los procesos de creación de una empresa a través de herramientas de calidad con un enfoque de teoría de redes**

Luisa Fernanda Campos Bohórquez, Mariana Bernal Rivera, Andrés Felipe Guzmán Cárdenas and Jeimy Andrea Quiroga Ardila, Ingeniera Industrial, Universidad de la Sabana, Facultad de Ingeniería, Chía-Cundinamarca

**ID 228 Mejoramiento de procesos bajo el enfoque Control Estadístico de Procesos y modelos A.R.I.M.A. Un caso de estudio**

Juan Carlos Herrera Vega, Germán Herrera Vidal and Bruno De Jesús Rahmer, Ingeniero Industrial, Cartagena de Indias, Colombia

**ID 114 A Multi-fractal Spectrum Analysis for online Structural Health Monitoring**

Mahmoud Z. Mistarihi, Dept. of Industrial Engineering, Hijawi faculty of Engineering Technology, Yarmouk University, Irbid, Jordan  
Zhenyu (James) Kong, Grado Dept. of Industrial and Systems Engineering, Virginia Polytechnic Institute and State University, USA  
Satish T. S. Bukkapatnam, Department of Industrial and Systems Engineering, Texas A&M University, College Station, TX, USA

**ID 285 Strengthening quality management in Zimbabwean film industry**

Anup Pradhan and Fortunate Tatenda Mauyakufa, Department of Operations and Quality Management Engineering, University of Johannesburg, South Africa

**ID 60 Application of a neural network to classify the out-of-control signal given by the multivariate Generalized Variance |S| control chart using real industry data**

Gerardo Avendano, Faculty of Business Administration, EAN University, Bogota, Colombia

Gustavo Andrés Campos-Avendano, Faculty of Mathematics and Engineering, Fundación Universitaria Konrad Lorenz, Bogotá, Colombia

4:00 – 5:30, October 25 (Wednesday)

**Healthcare Systems****Salon Hade**

**Session Chair:** Victor Jaime Garcia Urdaneta, Docente Universidad del Rosario, Bogotá, Colombia

**ID 51 Designing the Emergency Medical Operations System Structure: A Case Study**

Bernardo Villarreal, Edgar Granda, Andrea Montalvo, Samantha Lankenau & Ana Cristina Bastidas, Universidad de Monterrey, San Pedro Garza García, N.L., México

**ID 81 Inventory Management Model for an Emergency Medical Service**

Viviana Carvajal and Pablo A. Maya, Industrial Engineering Department, Universidad de Antioquia, Medellín, Colombia

Gloria M. Osorno, Industrial Engineering Department, Unidad Central del Valle del Cauca, Cali, Colombia

**ID 85 Mejoramiento de la adherencia a un programa de diabetes en una IPS, a través de Chronic Care Model (CCM), Clinical Decision Support Systems (CDSS) y Lean Six Sigma**

Helena María Cancelado C. and Ana María Pachón S., Departamento de Ingeniería Industrial, Universidad Icesi, Cali – Colombia

**ID 94 Effects of ambulance dispatching and relocation decisions on EMS quality**

Jenny Díaz-Ramírez, Engineering Department, Universidad de Monterrey, San Pedro Garza García, 66238, N.L. Mexico

María Gulnara Baldoquín De la Peña, Mathematical Sciences Department, Universidad EAFIT, Medellín, Colombia

**ID 109 Estudio del estado de implementación de tendencias logísticas en los hospitales de la ciudad de Medellín**

Sara Melguizo Melguizo and Juan Gregorio Arrieta Posada, Universidad EAFIT, Medellín, Antioquia, Colombia

**ID 272 Enhancement for an adherence process on a Diabetes program at a IPS, through Chronic Care Model (CCM), Clinical Decision Support Systems (CDSS) and Lean Six Sigma**

Helena Maria Cancelado C. and Ana Maria Pachón S., Department of Industrial Engineering, Universidad Icesi, Cali – Colombia

**ID 277 Implementación de un modelo de líneas de espera dentro de una Farmacia de salas de cirugía (Implementation of a waiting line model within a surgery room Pharmacy)**

Victor Jaime Garcia Urdaneta, Docente Universidad del Rosario, Bogotá, Colombia

Nelson Sierra Forero, Sub Director Hospitalario, Hospital Universitario Mayor (MEDERI), Bogota, Colombia

Eliana Acuña Cardenas, Coordinadora de Logística Servicio Farmacéutico, Hospital Universitario Mayor (MEDERI), Bogotá, Colombia

Jesus David Mejía, Regente Farmacia Salas de Cirugía, Hospital Universitario Mayor (MEDERI), Bogotá, Colombia

4:00 – 5:30, October 25 (Wednesday)

**Sustainability and Green Systems****Salon Topación**

**Session Chair:** Fortunate Tatenda Mauyakufa, University of Johannesburg, South Africa

**ID 104 Design of a management tool for strategic business alliances in the Energetic Sector**

Jorge Agustín Martínez Villafuerte, Verónica Garza Elizondo, Jesús Vázquez Hernández and Juárez Acosta Aradillas, Department of Engineering and Technologies, Dpt of Engineering Management, Universidad de Monterrey, San Pedro Garza García, NL, México

**ID 247 Environmental change in sustainable management approach in Brazilian public education: multiple case study**

Aline Monteiro Trigo, Institutional Strategic Environmental Sustainability Sector, CEFET/RJ, Rio de Janeiro, Brazil

Carine Nunes, Strategic Planning Coordination, IFTO, Tocantins, Brazil

Úrsula Maruyama, Strategic Management Officer/Business Administration School, CEFET/RJ, Rio de Janeiro, Brazil

Iván Andrés Ramírez Pinzón, Escuela de Economía, Universidad Sergio Arboleda, Bogotá, Colombia

**ID 250 Environmental Sustainability: Abatement of Co2 Emissions from a Calcination Plant in Zimbabwe**

L K Gudukeya and C Mbohwa, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

**ID 283 Creating a Sustainable Zimbabwean Film and Television industry**

Fortunate Tatenda Mauyakufa and Anup Pradhan, Department of Operations and Quality Management Engineering, University Of Johannesburg, South Africa

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5:30 – 7:00, Wednesday, October 25

## Poster Session

**ID 7 Blood Fractionation Chromatography**

Mason Chen, Stanford Online High School, Palo Alto, CA, USA

**ID 8 Triathlon Road Closure Control**

Zonghuan (Jason) Li, San Mateo High School in San Mateo, CA, USA  
Mason Chen, Stanford Online High School, Palo Alto, CA, USA

**ID 9 Predictive Model of Most Valuable Player**

Mason Chen, Stanford Online High School, Palo Alto, CA, USA

**ID 16 Compromise programming approach to welding Flux performance optimization**

Adeyeye A. D. and Allu A. J., Department of Industrial and Production Engineering, University of Ibadan, Oyo state, Nigeria.

**ID 22 Surface profile of objects for 3D printers by fringe pattern**

Javier Cruz Salgado, Research and Technological Development Department, Universidad Politécnica del Bicentenario (UPB), Silao, Guanajuato 36283, México

**ID 23 Could occupational role stress be suppressed to the extent of been dissolved?**

Junior Mabiza, Joyce Conduah and Charles Mbohwa, University of Johannesburg, South Africa

**ID 30 Analyzing Issues affecting food security in South African rural areas: case study of Limpopo province**

Noko Mokoetele and Yves Mulongo, Faculty of Economics and Financial Science, University of Johannesburg, South Africa

**ID 38 Detect Multiple Choice Exam Cheating Pattern**

Mason Chen, Stanford Online High School, Palo Alto, CA, USA

**ID 202 Delivery Service through an Integrated Inventory Management Model Using a System Dynamics Model**

P.Raghuram<sup>1</sup>, Mridula Sahay<sup>2</sup> and P.G.Saleeshya<sup>3</sup>

<sup>1,2</sup>Dept. of Mechanical Engineering, Amrita School of Engineering, Amrita Vishwa Vidyapeetham University, Coimbatore, T.N., India

<sup>2</sup>Amrita School of Business, Amrita Vishwa Vidyapeetham University, Coimbatore, T.N., India

**ID 223 Diseño De Una Metodología De Medición De Agotados Del Canal Tienda A Tienda De La Ciudad De Barranquilla**

Lina Fernanda Fuentes Amaya and Karilyn Urruchurto Gonzalez, Facultad de Ingeniería, Ingeniería industrial, Universidad Del Atlántico, Atlántico, Barranquilla

**ID 229 Metodología para la caracterización y elaboración del inventario de servicios logísticos del sector transporte terrestre de carga. Caso: Sector 3 en la Troncal de Occidente y su zona de influencia**

Luis Gustavo Posada Valencia y Johanna Quintero Carpintero and Gloria Mercedes López Orozco, Facultad de Ingeniería - Departamento de Operaciones y Sistemas, Universidad Autónoma de Occidente, Cali – Jamundí, 760030, Cali-COLOMBIA

**ID 242 Online Platform for Measuring the Lean/Green Maturity Level Based on the Sig Method**

Lucas Reis, Brazil

Fáber Giraldo, Universidad del Quindío, Colombia

Liane Kipper, Universidade de Santa Cruz do Sul – UNISC, Brazil

**ID 249 Environmental management of sustainable university campuses**

Aline Monteiro Trigo, Institutional Strategic Environmental Sustainability Sector, CEFET/RJ, Rio de Janeiro, Brazil

José Aires Trigo, Management and Engineering Department, UNESA, Rio de Janeiro, Brazil

Úrsula Maruyama, Strategic Management Officer/Business Administration School, CEFET/RJ, Rio de Janeiro, Brazil

Iván Andrés Ramírez Pinzón, Escuela de Economía, Universidad Sergio Arboleda, Bogotá, Colombia

**ID 257 Maintenance Performance Measurement Gaps in Manufacturing Enterprises: Translation to Management System**

Peter Muganyi and Charles Mbohwa, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa



**ID 258 Equipment Reliability curtailment due to brinelling of rotating equipment**

Peter Muganyi and Charles Mbohwa, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

**ID 259 Six Sigma: A Product Differentiator in the market for Manufacturing Industries**

Peter Muganyi and Charles Mbohwa, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

**ID 263 Removal of Methylene Blue Using Mango Seed Derived Carbon**

Emily Chen and Alicia Chen, Dublin High School, Dublin, CA 94568, USA

**ID 266 Comparative Aspects between TPM and World Class Maintenance – Literature Review**

Peter Muganyi and Charles Mbohwa, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

**ID 267 A Demonstration of the Central Limit Theorem Using Java Program**

Lakshmi Varshini Damodaran, Lynbrook High School, San Jose, CA, 95129, USA

**ID 268 Diseño De Una Metodología De Medición De Agotados Del Canal Tienda A Tienda De La Ciudad De Barranquilla**

Lina Fernanda Fuentes Amaya and Karilyn Urruchurto Gonzalez, Facultad de Ingeniería, Ingeniería industrial, Universidad Del Atlántico, Barranquilla

**ID 269 Simple Poker Game Design, Simulation, and Probability**Nanxiang Wang, Foothill High School, Pleasanton, CA 94588  
Mason Chen, Stanford Online High School, Stanford, CA, 94301, USA**ID 273 Leaf Growth Pattern**

Raymond Yap, Casa di Mir Montessori School, Campbell, CA 95008, USA

**ID 278 Statistical Pi Simulation by Java**

Katherine Lim, Eleanor Murray Fallon Middle School, 3601 Kohnen Way, Dublin, CA 94568

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## October 26 (Thursday)

7:00 – 8:00 Registration / Registro asistentes, ponentes e invitados

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### 8:00 - 9:00, October 26 (Thursday)

**8:00 - 9:00 KEYNOTE - Salon Esmeralda I****Mr. Gil Lugo**President, Lean ISO Experts, Inc.  
President, Green and Sustainable Solutions, Inc.  
Hollywood, Florida, USA

8:00 - 9:00, October 26 (Thursday)

**Global Engineering Education**

Salon Diamante

**Session Chair:** Dr. Hernán Nina Hanco, National University of San Antonio Abad, Cusco, Peru

8:00 – 8:20 (THURSDAY)

**Dr. Hernán Nina Hanco**Professor, Department of Computer Engineering  
Master in Administration and Systems and Computer Engineering  
National University of San Antonio Abad  
Cusco, Peru

8:20 – 8:40 (THURSDAY)

**Ignacio Laiton Poveda**Licenciado en Física Universidad Pedagógica Nacional, Bogotá, Colombia  
Especialista en Ciencias, Física, Universidad Nacional de Colombia. Magister en Educación, Universidad de la Salle, Bogotá, Colombia  
Doctor en Educación, tesis Cum Laude, Universidad de Granada, España

8:40 – 9:00 (THURSDAY)

**Dr. Lilian Adriana Borges**

Senior Lecturer and Research Coordinator

Pro-vice-chancellor's Office for Research

UNIDAVI - Universidade para o Desenvolvimento do Alto Vale do Itajaí

Rio do Sui, Brazil

8:00 - 9:00, October 26 (Thursday)

**Sustainability and Green Systems****Salon Turquesa****Session Chair:** Victoria Willson, Buenos Aires University, Argentina**ID 251 Improving the Efficiencies of Pelton Wheel in Micro-Hydro Power Plants**

Loice Gudukeya and Charles Mbohwa, University of Johannesburg, South Africa

**ID 62 The closed cycle process as an eco-efficiency strategy to improve industrial productivity**

Gerardo Avendaño Prieto, Business administration Program, Department of administration, EAN University, Colombia

William Eduardo Mosquera Laverde, MGA, Universidad Cooperativa de Colombia, Colombia

**ID 255 The Role of Total Quality Management (TQM) Practices on Improving Organisational Performance in Manufacturing and Service Organisations**

Nita Sukdeo, University of Johannesburg, South Africa

Jan Harm Christiaan Pretorius, University of Johannesburg, South Africa

Andre Vermeulen, University of Johannesburg, South Africa

**ID 97 Accuracy and precision of the drag and rolling resistance coefficients obtained by on road coast down tests**

José Ignacio Huertas, Department of Mechanical Engineering, Tecnológico de Monterrey, Eugenio Garza Sada, Monterrey, México

Gustavo Andrés Álvarez Coello, Department of Mechanical Engineering, Universidad del Azuay, Cuenca, Ecuador

**ID 274 Organic solid waste treatment and its deposition through sewage net. Technical and financial analysis for domiciliary treatment systems**

Victoria Willson, Susana Boeykens, Néstor Caracciolo and Facundo Calcagno, Buenos Aires University, Argentina

8:00 - 9:00, October 26 (Thursday)

**Logistics Management****Salón Zafiro****Session Chair:** Teresa Verduzco-Garza, Universidad de Monterrey, Mexico**ID 5 Challenges and Opportunities in Computing Logistics Cost in E-commerce Supply Chain**

Pramod Ghadge and Swadesh Srivastava, Flipkart Internet Private Ltd., Bangalore, Karnataka 560034, India

**ID 28 Reducing Outbound Transportation Costs: A Case Study**

Edgar Granda and Bernardo Villarreal, Universidad de Monterrey, San Pedro Garza Garcia, N.L., México

**ID 93 Reverse logistics system for WEEE: exploration of economic and environmental benefits**

Claudia Cecilia Pena Montoya, Universidad Santiago de Cali, Colombia

**ID 74 Increasing competitiveness through a logistics and transportation cluster: A literature review**

Teresa Verduzco-Garza and Fernando Gonzalez Aleu, Universidad de Monterrey, Mexico

8:00 - 9:00, October 26 (Thursday)

**Production Planning and Management****Salon Rubi****Session Chair:** Alvaro De Jesus Guarín Grisales, Universidad EAFIT, Medellín, Colombia**ID 29 A Review of Planning Production and Energy Efficiency Models**Bonnell Mejía-Maya<sup>a</sup>, Vanessa Sierra-Zuluaga<sup>b</sup> & Javier Fernández-Ledesma<sup>c</sup><sup>a</sup> Facultad de Ingeniería, Universidad Pontificia Bolivariana, Medellín, Colombia<sup>b</sup> Facultad de Ingeniería, Universidad Pontificia Bolivariana, Medellín, Colombia<sup>c</sup> Facultad de Ingeniería, Universidad Pontificia Bolivariana, Medellín, Colombia

**ID 45 Production Planning and control systems for competitiveness of Basic Metal and Steel industries**

Shimelis Tilahun and Daniel Kitaw, Addis Ababa Institute of Technology, Ethiopia

**ID 99 The Application of Fuzzy Programming Models in Solving Multi- Objective Problems of Production and Distribution in Supply Chains with Respect to Fuzzy Delivery Date**

Mostafa Gholamrezaii, Middle East Mines & Mineral Industries Development Holding Company (MIDHCO), Kerman, Iran  
Amin Lakzadeh, Middle East Mines & Mineral Industries Development Holding Company (MIDHCO), Kerman, Iran

**ID 204 Appraising the significance of new product development team climate and idea support.**

S. Asiya Zenab Kazmi, Industrial Mgt., Production Dept, University of Vaasa, Finland

**ID 217 Fábrica de Aprendizaje: Nuevo modelo de enseñanza productiva**

Alvaro De Jesus Guarin Grisales, Felipe Baena Restrepo and Julian Mora Orozco, Universidad EAFIT, Medellín, Colombia

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8:00 - 9:00, October 26 (Thursday) **Manufacturing and Design**

**Salon Hade**

**Session Chair:** Lina Nataly Alvarado Riaño, National University of Colombia at Bogotá, Colombia

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**ID 59 Improved Wire Rope Lubricator Design for a Mine**

Ignatio Madanhire and Tawanda Mushiri, Dept. of Mechanical Engineering, University of Zimbabwe, Mt Pleasant, Harare, Zimbabwe  
Charles Mbohwa, Department of Quality and Operations Management, University of Johannesburg, Johannesburg, South Africa

**ID 65 Design and Calculations of Kinetic Energy Harvesting System for a Decelerating Train**

Tawanda Mushiri, Bhekisipho Mpofu and Charles Mbohwa, Faculty of Engineering and the Built Environment, University of Johannesburg, Johannesburg, South Africa

**ID 72 Design and Fabrication of a Pedal Powered Washing Machine**

Tawanda Mushiri, Tererai J. Mugova and Charles Mbohwa, Faculty of Engineering and the Built Environment, University of Johannesburg, Johannesburg, South Africa

**ID 54 Design of an Architecture for the Evaluation of Traceability in the Supply Chain of Fresh Produce**

Lina Nataly Alvarado Riaño and Delio Alexander Balcázar Camacho, Department of Industrial Engineering and Systems, National University of Colombia at Bogotá, Bogotá D.C., Colombia

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8:00 - 9:00, October 26 (Thursday)

**Inventory Management**

**Salon Topación**

**Session Chair:** Narges Shahraki, Michael Foods Inc., MN, USA

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**ID 50 Variant of the EOQ Model for Electronic Products with Short Life Cycle**

Andrés Velásquez Contreras, Profesor Universidad Autónoma de Colombia, Doctorado en Logística y Dirección de la Cadena de Suministro, Universidad Popular Autónoma del Estado de Puebla, 21 Sur 1103, Puebla, Puebla 72410, México  
Diana Sánchez-Partida, Profesora investigadora en el posgrado de Logística y Dirección de la Cadena de Suministro, Universidad Popular Autónoma del Estado de Puebla, 21 Sur 1103, Puebla, Puebla 72410, México  
José Luis Martínez-Flores, En Ingeniería de sistemas. Consultor Master de Empresas, Director del Posgrado en Logística y Dirección de la Cadena de Suministro, Universidad Popular Autónoma del Estado de Puebla, Puebla, Puebla 72410, México

**ID 61 Storage Location Allocation Model for a Just in Sequence (JIS) production System**

Edmundo Salazar and José Luis Martínez, Logistics and Supply Chain Management, Universidad Popular Autónoma del Estado de Puebla, Barrio de Santiago #17 sur 901 C.P. 72410

**ID 110 A Control Policy for a Multi-Stage Remanufacturing System**

Narges Shahraki, Michael Foods Inc., MN 55305, USA

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## 9:00 – 10:00, October 26 (Thursday) Session

9:00 – 10:00 **KEYNOTE** - Salon Esmeralda I

**Professor Donald M. Reimer**

President, The Small Business Strategy Group  
 Detroit, Michigan, USA  
 Adjunct Faculty – A. Leon Linton Department of Mechanical Engineering  
 Lawrence Technological University  
 Southfield, Michigan, USA

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9:00 – 10:00, October 26 (Thursday) **Global Engineering Education** Salon Diamante  
**Session Chair:** Prof. Eduardo Cardoso Moraes, Federal University of Bahia, Brazil

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9:00 – 9:30 (THURSDAY)

**Prof. Eduardo Cardoso Moraes**

Federal Institute of Alagoas  
 Federal University of Bahia, Salvador, Brazil

*Engineering education challenges with advances of Industrial Revolution - Industry 4.0*

9:30 – 10:00 (THURSDAY)

**Ing./MFN Gabriel Suarez**

Aguascalientes, Ags. México  
 IEEE Aguascalientes Section Chair

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9:00 – 10:00, October 26 (Thursday) **Sustainability and Green Systems** Salon Turquesa

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**ID 69 Carbon Footprint Analysis of Electric Taxis in Istanbul**

Nuri Cihat Onat, Murat Kucukvar, Parinaz Toufani and Muhammad Ali Haider, Department of Industrial Engineering, Istanbul Sehir University, Istanbul, Turkey

**ID 75 Investigation of Optimal Charging Locations for Electric Vehicles in Istanbul**

Bedriye Atılgan, Yılmaz Muhammed Uşaklı, Ekrem Melih Baraçlı, Nuri Cihat Onat and Murat Kucukvar, Department of Industrial Engineering, Istanbul Sehir University, Istanbul, Turkey

**ID 79 A Global Multiregional Life Cycle Sustainability Assessment of National Energy Production Scenarios until 2050**

Murat Kucukvar, Nuri Cihat Onat, Muhammad Ali Haider and Mohammad Abdullah Shaikh, Department of Industrial Engineering, Istanbul Sehir University, Istanbul, Turkey

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9:00 – 10:00, October 26 (Thursday) **Logistics Management** Salón Zafiro  
**Session Chair:** Gloria Mercedes López Orozco, Universidad Autónoma de Occidente, Cali, Colombia

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**ID 96 The Reverse Logistic As Supporting Municipal Solid Waste Management**

Vivian Lorena Chud Pantoja, Claudia Cecilia Peña Montoya and Claudia Cristina Bocanegra Herrera, Facultad de Ingeniería, Universidad Santiago de Cali, Cali, Colombia

**ID 211 Modelo de costos logísticos en un sistema de producción MIPYME. Caso Empresa de Calzado**

Yira Janneth Avila Ortiz y Margot Cajigas and Gloria Mercedes López Orozco, Facultad de Ingeniería - Departamento de Operaciones y Sistemas, Universidad Autónoma de Occidente, Cali – Jamundí, 760030, Cali-Colombia

**ID 218 Modelo de distribución urbana de mercancías en empresa dedicada al transporte de carga**

Javier Arias-Osorio and Chabeli Suarez, Escuela de estudios industriales y empresariales, Universidad Industrial de Santander, Bucaramanga, Colombia

**ID 231 Metodología De Clasificación De Necesidades Aplicada Al Contexto Logístico, Transporte Intermodal Y Portuario**

Gloria Mercedes López Orozco, Ana Isabel Meneses Franco y Katherine Becerra López, Facultad de Ingeniería - Departamento de Operaciones y Sistemas, Universidad Autónoma de Occidente, Cali, Colombia

9:00 – 10:00, October 26 (Thursday)

**Decision Sciences****Salon Rubi**

**Session Chair:** Fernando Juárez, Universidad del Rosario, Bogotá, Colombia

**ID 276 Just in Time Strategy and Profitability Analysis in Financial Statements**

Fernando Juárez, Carlos Hernan Pérez and Alejandro Useche, School of Business, Universidad del Rosario, Bogotá, Colombia

**ID 280 Measuring Service Quality of Aviation Industry in Turkey Using Mixed Multi Criteria Decision Making Techniques**

Mehmet Salih Goceri, Management Information System, Santa Clara University, Santa Clara, CA, 95051, USA

Tugba Goceri, Santa Clara, CA, 95051, USA

**ID 281 Measuring the Service Quality of Fast-food Restaurants in Turkey Using a Hybrid Multi Criteria Decision Making**

Mehmet Salih Goceri, Management Information System, Santa Clara University, Santa Clara, CA, 95051, USA

Tugba Goceri, Santa Clara, CA, 95051, USA

**ID 254 Blending transformational leadership with strategic thinking to strengthen organizational NPD innovation process**

S. Asiya Zenab Kazmi, Industrial Mgt., Production Dept., University of Vaasa, Finland

9:00 – 10:00, October 26 (Thursday)

**Sustainability and Green Systems****Salon Hade**

**Session Chair:** Abrahams Mwasha, The University of the West Indies St Augustine Campus, West Indies

**ID 86 Modelo de Responsabilidad Social para Empresas Refresqueras y su manejo de residuos PET**

Claudia Baza-Alvarez, Unidad Profesional Interdisciplinaria de Ingeniería y, Ciencias Sociales y Administrativas, Instituto Politécnico Nacional, Ciudad de México

Luis Rocha-Lona, Rosa Amalia Gómez Ortiz y Fernando Lambarry Vilchis, Escuela Superior de Comercio y Administración, Unidad Santo Tomás, Instituto Politécnico Nacional, Ciudad de México

**ID 17 Recycled Aggregates for Green Concrete**

Abrahams Mwasha and Rakesh Ramnath, The University of the West Indies St Augustine Campus, West Indies

9:00 – 10:00, October 26 (Thursday)

**Automation and Control****Salon Topación**

**Session Chair:** Tawanda Mushiri, University of Johannesburg, South Africa

**ID 116 Industry 4.0 and its impacts on society**

Eduardo Cardoso Moraes, Federal Institute of Alagoas – IFAL, Brazil

Herman Augusto Lepikson, Federal University of Bahia, Brazil

**ID 102 Renewable Energy Growth Pattern and Correlation with CO2 Emissions in BRICS Nations**

Abhijit T, Mridula Sahay and Kewal Gupta, Amrita School of Business, Amrita Vishwa Vidyapeetham University, Coimbatore, India

**ID 15 Biomechanical Based Athletic Potential Assessment System**

Catherine Cleetus, Sahrdaya College of Engineering & Technology, India

**ID 71 Redesign of an automatic crown cap punch press machine and implementation of a pro-active maintenance strategy: A Case study for ZXY, Zimbabwe**

Tawanda Mushiri, Romana E Mundondi and Charles Mbohwa, Faculty of Engineering and the Built Environment, University of Johannesburg, Johannesburg, South Africa



10:00 - 10:30 Break

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13:00- 11:30 **KEYNOTE** - Salon Esmeralda I & II

**Enrique Sandoval**  
Vice President and COO  
OCENSA  
Bogota, Colombia

*"Broccol Effect, Building Operations Capacity"*

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11:30 – 12:30 **KEYNOTE** - Salon Esmeralda I & 2

**Dr. Juan Diego Alzate**  
Fundador de Transprojects (Paris)  
Smart Grop Asia (China)

*"The Future of Distribution based on n 10 Mega-Trends of Supply Chain"*

12:30 – 1:30 **KEYNOTE** - Salon Esmeralda I & II

**Dr. Rodolfo Sabonge**  
Ex Vicepresidente del Canal de Panamá

*"Prospective of Regional Logistics and its impact on Supply Chains"*

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1:30 – 2:15 pm Lunch

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2:15 – 3:00 pm Thursday, **KEYNOTE** - Salon Esmeralda

**Dr. Gian Paolo Gandini**  
Director Corporativo de Compras Belcorp  
Gerente general Andina Charer paner Apics

*"Colaboration as a Key Factor in the Developmnet of the Supply Chain"*

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3:00 – 3:30 **Conference Awards and Recognitions** - Salon Esmeralda

3:30 – 4:30 **PANEL** - Salon Esmeralda

Panelists:

Diana González Díaz Jefe de Operaciones de Don Jediondo

Sebastian Puerta Mantilla Jefe de Operaciones Carga Internacional Latam

Daniel Villa Camacho Chief operating official of Colombia, Perú and Ecuador Domicilios.com

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4:30 – 5:00 Break

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5:00 – 6:00 **KEYNOTE International** - Salon Esmeralda I

**Dr. Fernando Cámara**  
Director de Logística Jerónimo Martins ARA

*"Logistica -Supermercados Ara Colombia"*

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5:00 – 6:00, October 26 (Thursday) **Global Engineering Education** Salon Diamante  
**Session Chair:** Dr. Vitor M. Caldana, IFSP - Instituto Federal de São Paulo - Campus Sorocaba, Brazil

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5:00 – 5:30 pm (THURSDAY)

**Dr. Vitor M. Caldana**

Professor  
 Depto. de Eletroeletrônica  
 IFSP - Instituto Federal de São Paulo - Campus Sorocaba  
 Santana de Parnaíba, SP, Brazil

5:30 – 6:00 pm (THURSDAY) – **INDUSTRY SOLUTIONS**

**Antonio J. Jara**

Adjoint Scientifique  
 University of Applied Sciences Western Switzerland (HES-SO)  
 Vice-Chair of the IEEE Communications Society Internet of Things Technical Committee

*Digitalization of Cyber Physical Processes with FIWARE*

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5:00 – 6:00, October 26 (Thursday) **Facilities Planning & Human Factors** Salon Amatista  
**Session Chair:** Mehmet Salih Goceri, Santa Clara University, Santa Clara, CA, USA

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**ID 83 Modelo de Weber sobre Zonas Específicas**

Lucía Cazabal Valencia, Universidad Popular Autónoma Del Estado de Puebla, Mexico  
 Santiago-Omar Caballero-Morales, Universidad Popular Autónoma del Estado de Puebla A.C., Mexico

**ID 4 Analysis the Factors of Cognitive Ergonomics Phenomena on Electronic Book (eBook) Readers**

Muhammad and Rahmat Nurcahyo, Industrial Engineering (IE) Department, University of Indonesia, Depok, West Java, Indonesia

**ID 67 Relevant Risk Factors Linked to Musculoskeletal Discomfort in Workers of Meat Processing Industry**

Mervyn Márquez y Miguel Márquez, Departamento de Ingeniería Industrial, Universidad Nacional Experimental del Táchira, San Cristóbal, Venezuela

**ID 107 Operational Risk Management Applied to Ergonomics**

Lawrence J. H. Schulze, Department of Industrial Engineering, University Houston, Houston, TX, USA

**ID 233 Web Site Usability Measurement: A Case of Fatih University**

Mehmet Salih Goceri, Management Information System, Santa Clara University, Santa Clara, CA, 95051, USA  
 Tugba Goceri, Santa Clara, CA, 95051, USA

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5:00 – 6:00, October 26 (Thursday) **Engineering Education** Salon Turquesa  
**Session Chair:** Victor H. Molina, Universidad Técnica de Ambato, Ambato, Ecuador

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**ID 113 Software as a Service Google Apps in the Internal Communication of the National University of San Antonio Abad del Cusco**

Hernán Nina, Lauro Enciso and William A. Chavez, Computer Engineering and Systems, National University of San Antonio Abad, Cusco, Perú

**ID 222 An Analysis of Engineering Education impact on Brazil's Micro Regions**

Vitor Mendes Caldana, IFSP - Instituto Federal de São Paulo - Campus Sorocaba, Santana de Parnaíba, SP, Brazil  
 Márcia Terra da Silva, Post-Graduation Program for Industrial Engineering – PPGEP, UNIP - University Paulista, São Paulo, SP, Brazil

**ID 248 Brazilian case study on Strategic, Quality and People Management applied to SAE Baja and Aero teams**

Emanuel Sandro de Brito, Sidney Teylor de Oliveira and Úrsula Maruyama, Strategic Management Officer/Business Administration School, CEFET/RJ, Rio de Janeiro, Brazil

Paloma Martinez, Production Management and Engineering MBA Department, Universidad El Bosque, Bogota, Colombia

**ID 73 The Effects of Innovation on Manufacturing Competitiveness of the Leading Countries in the Automotive Industry**

Rolando Rodríguez Alanis, Industrial and Systems Engineering Program, University of Monterrey, Nuevo Leon, Mexico

Luz María Valdez de la Rosa, Engineering Management Program, University of Monterrey, Nuevo Leon, Mexico

Fernando González-Aleu González, Engineering Department, University of Monterrey, Nuevo Leon, Mexico

María Teresa Verduzco Garza, Engineering Department, University of Monterrey, Nuevo Leon, Mexico

**ID 82 The impact of the global manufacturing industry of electronic devices on higher education institutions in Baja California**

Victor H. Molina, Grupo de Decisiones e Innovacion, Facultad de Ciencia e Ingenieria en Alimentos, Universidad Tecnica de Ambato, Ambato, Ecuador

Jose M. Lavin, Grupo de Decisiones e Innovacion, Facultad de Jurisprudencia y Ciencias Sociales, Universidad Tecnica de Ambato Ambato, Ecuador

Hector Gomez Alvarado, Facultad de Ciencias Humanas y de la Educacion, Universidad Tecnica de Ambato, Ambato, Ecuador

Juan Carlos Ruiz-Carrera, Grupo de Decisiones e Innovacion, Facultad de Ciencia e Ingenieria en Alimentos, Universidad Tecnica de Ambato, Ambato, Ecuador

Julio M. Vizuete Muñoz, Facultad de Ciencias Administrativas, Universidad Tecnica de Ambato, Ambato, Ecuador

Mary Jane C. Parmentier, School for the Future of Innovation in Society, Arizona State University, Tempe, AZ, USA

**ID 203 A New Way to Identify and Enhance Entrepreneur Qualities**

Mouad El Omari, Mohammad Erramdani and Saida Filali, Department of Management and Entrepreneurship, Mohamed First University, Morocco

5:00 – 6:00, October 26 (Thursday)

**Logistics Management**

**Salón Zafiro**

**Session Chair:** Cristian José Solano Payares, Universidad del Atlántico, Colombia

**ID 232 Modelo de medida de rendimiento de las operaciones logísticas: Aplicación servicios de maquila en productos de consumo masivo en Cali**

Gloria Mercedes López Orozco, Facultad de ingeniería – Departamento de operaciones y sistemas, Universidad Autónoma de Occidente, Cali, Colombia

Carolina Ruano Estrada y Guillermo Peñaranda Sánchez, Facultad de ingeniería – Departamento de operaciones y sistemas Universidad Autónoma de Occidente, Cll 25#115-85 Km 2 Vía Cali-Jamundí, Código Postal: 760030, Cali, Colombia

**ID 236 Modelo Logístico Para Acopio Y Distribución De Alimentos Críticos. Caso Valle Del Cauca**

Valentina Restrepo Peláez y Nelson Ricardo Becerra Escobar, Facultad de Ingeniería - Departamento de Operaciones y Sistemas Universidad Autónoma de Occidente, Calle 25#115-85 Km 2 Vía Cali-Jamundí Código Postal: 760030 Cali, Colombia

Gloria Mercedes López Orozco, Facultad de Ingeniería - Departamento de Operaciones y Sistemas, Universidad Autónoma de Occidente, Calle 25#115-85 Km 2 Vía Cali-Jamundí Código Postal: 760030 Cali, Colombia

**ID 237 Estudio diagnóstico de las prácticas de logística inversa en el manejo de canastillas en Alimentos Cárnicos S.A.S en la ciudad Barranquilla**

María Gari, Lina Woo and Cristian Solano, Universidad del Atlántico, Barranquilla, Colombia

**ID 238 Diseño De Layout Del Almacen De Productos De La Distribuidora Barranquilla S.A.S. Para Mejorar Sus Operaciones Logísticas**

Cristian José Solano Payares, Elvira Patiño Velez and Bleiner Castro, Universidad del Atlántico, Colombia

**ID 245 Desarrollo De Un Algoritmo Genético Para La Solución De Un Problema De Asignación De Cargas**

Natalia Alejandra Gelves Tello and Mónica Patricia Acosta Rodríguez, Candidate for the Master's Degree in Industrial Engineering, Pontificia Universidad Javeriana, Carrera 7 No. 40 – 62, Bogotá-Colombia

Juan Pablo Caballero Villalobos, PhD in Engineering, Universidad de los Andes, Director of the Master's Degree in Industrial Engineering, Pontificia Universidad Javeriana, Bogotá-Colombia

5:00 – 6:00, October 26 (Thursday)

**Case Studies****Salon Rubi****Session Chair:** Juan Jesús Arenas, Pontificia Universidad Católica del Perú, San Miguel, Lima, Perú**ID 58 Comparison of EMS in Project Phase and a Fully Implemented One: Case Study**

Thierry Ngoundou Boulamatari and Charles Mbohwa, Department of Quality and Operations Management, University of Johannesburg, P O Box 524, Auckland Park 2016, Johannesburg, South Africa

Ignatio Madanhire, Department of Mechanical Engineering, University of Zimbabwe, Mt Pleasant , Harare, Zimbabwe

**ID 100 Temporary Clusters: A New Approach for Manufacturing SME Management**

Ahmed Mohib, Department of Industrial Engineering, Fayoum University, Fayoum, Egypt

Ahmed Deif, Industrial Technology and Packaging Department, California Polytechnic State University, SLO, USA

**ID 214 MicroErp, a computer solution for small and medium-sized enterprises: Case study of collaboration between university and industry**

Juan Jesús Arenas and Freddy Paz, Pontificia Universidad Católica del Perú, Engineering Department, San Miguel, Lima 32, Perú

**ID 271 CVRPTW model applied to the collection of food donations**

Iván Guillermo Peña Arenas, Alexander Gutiérrez Sánchez, Carlos Armando, López Solano, Linda Bibiana Rocha Medina y Mónica Orozco Rodríguez, Facultad de Ingeniería, Corporación Universitaria Minuto de Dios – UNIMINUTO, Bogotá – Colombia

**ID 20 Development of an effective maintenance concept for enhancement of competitive advantage: a case study of East African Portland Cement Company**

Japheth Ombogo, East African Portland Cement, Kenya

5:00 – 6:00, October 26 (Thursday)

**Engineering Management****Salon Hade****Session Chair:** Bupe G Mwanza, University of Johannesburg, South Africa**ID 57 Impact of EMS (ISO 14001) on a Manganese Mine Operations in Gabon: Case Study**

Thierry Ngoundou Boulamatari and Charles Mbohwa, Department of Quality and Operations Management, University of Johannesburg, P O Box 524, Auckland Park 2016, Johannesburg, South Africa

Ignatio Madanhire , Department of Mechanical Engineering , University of Zimbabwe, Mt Pleasant , Harare, Zimbabwe

**ID 270 El impacto de la implementación de sistemas de gestión. Aspectos a considerar para la toma de decisiones en las organizaciones. Caso de las pequeñas y medianas empresas en Bogotá D.C. Colombia**

Oscar Alejandro Vásquez-Bernal, Escuela de Ciencias Básicas Tecnología e Ingeniería, Universidad Nacional Abierta y a Distancia UNAD, Bogotá D.C. - Colombia

William Eduardo Mosquera-Laverde, Facultad de Ciencias Administrativas, Económicas y Afines, Universidad Cooperativa de Colombia, Bogotá D.C- Colombia

**ID 240 Diseño de una estructura organizacional empresarial integral nodal basada en el fomento del uso de las fuentes de energía limpia como solución a las necesidades energéticas del municipio de Acandí en el departamento del Chocó**

Efrain Mancipe Contreras, Universidad Distrital Francisco Jose De Caldas, Facultad De Ingenieria, Maestria En Ingenieria Industrial, Bogotá D.C

**ID 243 Analysis of the Strategies for Incorporating the Informal Waste Collectors' into Formalized Systems: Engineering Management Perspective**

Bupe G Mwanza and Charles Mbohwa, School of Engineering Management, University of Johannesburg, South Africa

5:00 – 6:00, October 26 (Thursday)

**Information Technology / E-Business and E-Commerce****Salon Topación****Session Chair:** Johanna Trujillo Díaz, Fundación Universitaria Cafam, Bogota, Colombia**ID 27 ICT as driver for the development in Small Business segment**

Sanita Meijere and Tatjana Tambovceva, Faculty of Engineering Economics and Management, Riga Technical University, Latvia

**ID 106 Industry 4.0: Conceptualization, Backgrounds, Developments and its applicability in Regional Context**

Javier Darío Fernández-Ledesma, Dep. of Industrial Eng., Universidad Autónoma Latinoamericana, Medellín, Antioquia, Colombia



**ID 225 Factores asociados a la aceptación del comercio electrónico en los municipios del Altiplano del Oriente Antioqueño**

Sebastian Franco Castaño, Instituto Tecnológico Metropolitano, Colombia  
 Luz Alexandra Montoya Restrepo, Universidad Nacional de Colombia, Colombia  
 Jonathan Bermudez Hernández, Instituto Tecnológico Metropolitano, Colombia

**ID 234 Incidencia De Actividades De Innovación En Variables De Producción En Empresas Del Sector Metalmeccánico De Cartagena De Indias**

Yunellis del Carmen Burgos Pereira, Ingeniera Industrial, Magíster en Gestión de la Innovación, Estudiante de Doctorado en Ingeniería con mención en Ingeniería Industrial, Fundación Universitaria Tecnológico Comfenalco, Grupo de investigación CIPTEC- Facultad de Ingenierías - Fundación Universitaria Tecnológico Comfenalco Cartagena, Cartagena de Indias -Colombia  
 Luneyda Ballesteros Peinado and Candelaria Molina Padrón, Ingeniera Industrial, Especialista en Estadística, Magíster en Educación, Estudiante de Doctorado en Ingeniería con mención en Ingeniería Industrial, Fundación Universitaria Tecnológico Comfenalco, Grupo de investigación CIPTEC- Facultad de Ingenierías - Fundación Universitaria Tecnológico Comfenalco Cartagena, Cartagena de Indias -Colombia

**ID 6 Sorting methodology using PROMETHEE method to consolidate, load and transport goods**

Johanna Trujillo-Díaz, Facultad de Ingeniería Industrial, Fundación Universitaria Cafam, Bogota, Colombia

**ID 111 Sorting methodology to select carriers in a Colombian Green Coffee Supply Chain using PROMETHEE method**

Johanna Trujillo Díaz, Industrial Engineering Faculty, Fundación Universitaria Cafam, Av. Cra. 68 No. 90-88, Bogota, Colombia  
 Rafael Guillermo García Cáceres, Industrial Engineering Faculty, Universidad Pedagógica y Tecnológica de Colombia – UPTC, Sede Central Tunja–Boyacá–Colombia

6:00 – 6:30 Conference closing and certificate delivery



## Continuous Innovation

At Eaton, we are continually pursuing new ideas with our current and future technologies to help customers meet their goals. Our valvetrain solutions such as cylinder deactivation and hollow engine valves that are engineered to deliver efficient performance while withstanding the extreme heat requirements. Our supercharger technologies for advanced boosting provide the instant throttle response and improved fuel efficiency customers desire. We are constantly innovating differentiated technologies to provide advanced solutions for the industry and our customers.

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## 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](mailto: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

Details can be found in the website: <http://ieomsociety.org/ieom/chapters/>

### IEOM Student Chapters around Globe

1. Ahsanullah University of Sci. & Technology, Dhaka, Bangladesh	17. Lawrence Technological University, Michigan, USA
2. Akhawayn University, Morocco	18. Mehran University of Engineering and Tech, Jamshoro, Pakistan
3. Babylon University, Iraq	19. Morrill Learning Center, San Jose, California, USA
4. College of Engineering Guindy (Anna University), Chennai, India	20. National University of Science and Tech in Windhoek, Namibia
5. Ecole Mohammadia d'Ingénieurs (EMI), Rabat, Morocco	21. Pandit Dendayal Petroleum University, Ahmedabad, Gujrat, India
6. Effat University, Saudi Arabi	22. Sultan Qaboos University, Oman
7. Effat University, Saudi Arabi	23. Tribhuvan University, Nepal
8. Government College University Faisalabad, Pakistan	24. Universidad del Rosario, Bogota, Colombia
9. Guru Nanak Dev Engineering College, Ludhiana, Punjab, India	25. Universiti Utara Malaysia
10. Guru Nanak Dev Engineering College, Ludhiana, Punjab, India	26. University of Costa Rica
11. Islamic University of Technology (IUT), Bangladesh	27. University of Indonesia
12. Jessore University of Science and Technology (JUST), Bangladesh	28. University of Johannesburg, South Africa
13. Kathmandu University, Nepal	29. University of Peradeniya, Sri Lanka
14. Khulna University of Engineering and Tech. (KUET), Bangladesh	30. Vellore Institute of Technology, India
15. Khulna University, Bangladesh	31. Vidy Jyothi Institute of Technology, Hyderabad, India
16. King Abdulaziz University, Saudi Arabia	

## Establish Your Institution IEOM Student Chapter

Visit IEOM Website for details: [www.ieomsociety.org](http://www.ieomsociety.org)

### Join IEOM Society - Be a Professional or Student Member

<b>MEMBERSHIP BENEFITS</b> <ul style="list-style-type: none"> <li>• Be part of the Diverse Industrial Engineering (IE) and Operations Management (OM) Profession</li> <li>• Professional Development</li> <li>• Access IEOM Publications</li> </ul>	<ul style="list-style-type: none"> <li>• IEOM Newsletters</li> <li>• Access IEOM Online Resources</li> <li>• Networking Opportunities</li> <li>• Conferences and Seminars</li> <li>• Career and Leadership Development</li> </ul>
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## IEOM Professional Chapters

<b>AFRICA</b> <ul style="list-style-type: none"> <li>▪ <a href="#">IEOM Society of Botswana</a></li> <li>▪ <a href="#">IEOM Society of Cameroon</a></li> <li>▪ <a href="#">IEOM Society of Ethiopia</a></li> <li>▪ <a href="#">IEOM Society of Ghana</a></li> <li>▪ <a href="#">IEOM Society of Kenya</a></li> <li>▪ <a href="#">IEOM Society of Libya</a></li> <li>▪ <a href="#">IEOM Society of Mauritius</a></li> <li>▪ <a href="#">IEOM Society of Morocco</a></li> <li>▪ <a href="#">IEOM Society of Namibia</a></li> <li>▪ <a href="#">IEOM Society of Nigeria</a></li> <li>▪ <a href="#">IEOM Society of Tunisia</a></li> <li>▪ <a href="#">IEOM Society of Zimbabwe</a></li> </ul> <b>EUROPE</b> <ul style="list-style-type: none"> <li>▪ <a href="#">IEOM Society of Bulgaria</a></li> <li>▪ <a href="#">IEOM Society of France</a></li> <li>▪ <a href="#">EOM Society of Greece</a></li> <li>▪ <a href="#">IEOM Society of Italy</a></li> <li>▪ <a href="#">IEOM Society of Portugal</a></li> <li>▪ <a href="#">IEOM Society of Russia</a></li> </ul>	<b>ASIA and AUSTRALIA</b> <ul style="list-style-type: none"> <li>▪ <a href="#">IEOM Society of Australia</a></li> <li>▪ <a href="#">IEOM Society of Bangladesh</a></li> <li>▪ IEOM Society of Bhutan</li> <li>▪ <a href="#">IEOM Society of Indonesia</a></li> <li>▪ IEOM Society of Kazakhstan</li> <li>▪ <a href="#">IEOM Society of Malaysia</a></li> <li>▪ <a href="#">IEOM Society of Pakistan</a></li> <li>▪ <a href="#">IEOM Society of Sri Lanka</a></li> <li>▪ <a href="#">IEOM Society of Uzbekistan</a></li> </ul> <b>MIDDLE EAST</b> <ul style="list-style-type: none"> <li>▪ <a href="#">IEOM Society of Iran</a></li> <li>▪ <a href="#">IEOM Society of Iraq</a></li> <li>▪ <a href="#">IEOM Society of Jordan</a></li> <li>▪ <a href="#">IEOM Society of Lebanon</a></li> <li>▪ <a href="#">IEOM Society of Qatar</a></li> <li>▪ <a href="#">IEOM Society of Saudi Arabia</a></li> <li>▪ <a href="#">IEOM Society of UAE</a></li> <li>▪ <a href="#">IEOM Society of Yemen</a></li> </ul>	<b>NORTH AMERICA</b> <ul style="list-style-type: none"> <li>▪ <a href="#">IEOM Society of Michigan</a></li> <li>▪ <a href="#">IEOM Society of New York</a></li> <li>▪ <a href="#">IEOM Society of Oregon</a></li> <li>▪ <a href="#">EOM Society of Washington DC</a></li> </ul> <b>SOUTH AMERICA</b> <ul style="list-style-type: none"> <li>▪ <a href="#">IEOM Society of Colombia</a></li> <li>▪ <a href="#">IEOM Society of Peru</a></li> </ul> <b>CENTRAL AMERICA AND CARIBBEAN</b> <ul style="list-style-type: none"> <li>▪ <a href="#">IEOM Society of Costa Rica</a></li> <li>▪ <a href="#">IEOM Society of Honduras</a></li> </ul>
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**How should an Engineering Student be Equipped with the Required Skills for Future Career?**  
**Workshop Conducted by IEOM Student Chapter at Vidya Jyothi Institute of Technology, Hyderabad, India**  
**Harsh Sharma, August 27, 2016**

One-Day Workshop was conducted on 27th August, 2016 titled "HOW SHOULD AN ENGINEERING STUDENT BE EQUIPPED WITH THE REQUIRED SKILLS FOR HIS/HER FUTURE CAREER?" The workshop was graced by the faculties of the English Department and by Dr. Siddhartha Ghosh, Head of training and placements and also Head of CSE Dept. The keynote speaker of the day was Mr. Zia-ul-Haq Husamuddin, who is an incredible person equipped with skills and expertise in the field of training students for their career.

In order to acquaint student participants with the members of the chapter, a brief introduction of the IEOM Student Chapter was provided.

The winner of the Creative Writing Competition, Harsh Sharma and the other student members gave their experiences of how this chapter had helped them in knowing various perspectives. The topic for the competition was "Technical Students Problems in Developing Communication Skills and Some Possible Solutions".

Dr. Siddhartha Ghosh, Training and Placement Officer, who is a dynamic leader and professor, utilized this platform for expressing his views on how a candidate can build his future if he/she knows the right track and is working hard to achieve goals. He also congratulated the students for their participation and thanked **Dr. M. Pratibha, Faculty Advisor of IEOM Student Chapter**, for organizing this workshop. He also introduced the Chief Guest and Trainer of the day, Mr. Zia-ul-Haq Husamuddin and welcomed him for further events.

Mr. Zia-ul-Haq Husamuddin, Editor, Movie Director, and Soft Skills Trainer is a person with extraordinary qualities of a leader and has expertise in the field of Soft Skills Training. He had been training students since 14 years and he also worked as a recruiter for an MNC.

Mr. Zia-ul-Haq Husamuddin began the workshop with a small speech which focused on the need of soft skills today as a student studying technical subjects. The series of training events that took under his guidance were as follows:

**1. Body Language:** He first explained how our body language leaves an impact on the recruiter when we go for an interview. The words "First Impression is the Last Impression" were aptly defined by him. Body Language is significant in effective communication. Every student was then called on the dais and asked to self-introduce themselves. He corrected the students on their weaknesses and gave his valuable feedback. Then he spoke about "eye contact" which is important to showcase one's confidence. He also explained how we should manually grasp control and actively become more observant, because you start to understand what you project with your own body language. The relevant body languages is all about evaluating the situation and adjusting to feel natural and comfortable in it.

**2. Do's and Don'ts during an Interview:** The next part of the training during the workshop (for an interview) was how the HR Interview takes place. Being a HR Interviewer himself, Mr. Zia-ul-Haq Husamuddin taught about the common mistakes that the applicants make during an interview which makes them nervous and leads to problems during the HR Rounds.

**3. Role Play:** The trainer then divided the students into small teams and asked them to present a Role Play which would be on a specific topic of their choice. The students actively participated in this and then he gave his feedback and correction.

Mr. Zia-ul-Haq Husamuddin ended the training with a valuable suggestion emphasizing on the importance of work and quoted a small quote from the Bhagavad-Gita on the same.

Mr. Zia-ul-Haq Husamuddin was given a token of appreciation by Dr. Pratibha, Faculty Advisor and Dr. Ghosh, T&P officer, for giving his time and advice to the workshop and students.

The workshop ended with prize distribution by the trainer to the winners of the various competitions under the IEOM Student Chapter. The workshop was conducted with active participation by the students and staff collectively.





**IEOM 2016 Malaysia Conference Photos (March 8-10, 2016)**



**IEOM 2016 Detroit Conference Photos (September 23-25, 2016)**





### IEOM Morocco Conference Photos (April 11-13, 2017)



### IEOM Women in Industry and Academia Forum

Website: <http://ieomsociety.org/ieom/women-in-industry-and-academia/>





**IEOM Society International Awards**

Industrial Engineering and Operations Management (IEOM) Society recognizes educators, researchers, and professionals for the significant contribution through teaching, research and publication, service, innovation, or leadership in the field of industrial engineering and operations management. The awards presented can be found on the IEOM Society website: <http://www.ieomsociety.org/awards/>



**IEOM Student Chapter at University of Johannesburg, South Africa**  
**Faculty Advisor: Dr. Charles Mbohwa**

**Chapter Officers**

- President: Sebonkile Thaba
- Vice President: Bupe Mwanza
- Director of Administration: Tatenda Chingono
- Director of Communications: Tawanda Mushiri
- Director of Finance: Khathutshedzo Mushavanamadi
- Director of Membership: Loice Gudukeya
- Director of Programs: Takalani Nemarumane
- Director of Webmaster: Nelson Madonsela

**IEOM Student Chapter at King Abdulaziz University**  
**Department of Industrial Engineering**  
**Jeddah, Saudi Arabia**

**Faculty Advisor: Dr. Raed Rida Obaid**

**Chapter Officers:**

- President: Linah Khalid Hussain
- Vice President: Rawan Hasan Baik
- Director of Administration: Walaa Othmani
- Director of Finance: Sara Yahya
- Director of Programs: Malak Mously
- Director of Webmaster and Social Media: Shahad Al Malki
- Director of Communications: Bushra Alkhaldi
- Director of Membership: Dania Memish

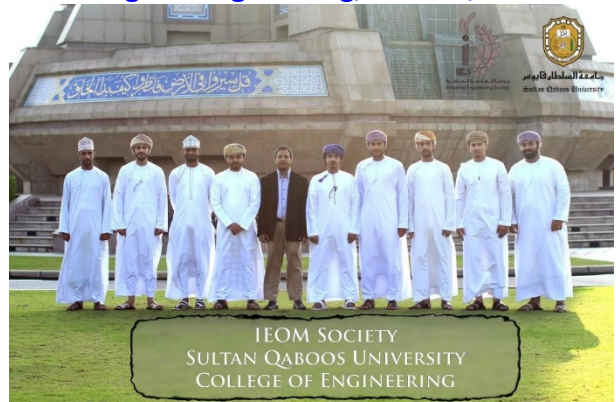
**Plan of Activities:**

Title	Activity Type	Leader
Industrial Engineering 101	Seminar	Dania Memish
Presentation Skills	Seminar	Walaa Othmani
PMP	Workshop	Bushra Al-Khaldi
Lean 6 Sigma	Workshop	Ashayer Qutob
Emotional Intelligence	Lecture	Sara Yahya
P&G Tour	Plant Tour	Malak Mously
TedX Female Engineers	Communication Development	Rawan Baik
Supply Chain Game	Workshop	Anan Almarzouki
Eng Day Booth	Membership Building	Tala Alromi
STEAM	Communication Development	Shahad Al Malki

**IEOM Student Chapter – Government College University Faisalabad, Pakistan**



**IEOM Student Chapter at Sultan Qaboos University, College of Engineering, Muscat, Oman**



IEOM SOCIETY  
 SULTAN QABOOS UNIVERSITY  
 COLLEGE OF ENGINEERING



**IEOM Partner Events****INFORMS Annual Meeting 2017**

October 22-25, 2017

George R. Brown Convention Center &amp; Hilton Americas-Houston Hotel

Houston, TX

Chair: William Klimack, Chevron

<http://meetings2.informs.org/wordpress/houston2017/>**IFEEES (International Federation on Engineering Education Societies)**

World Engineering Education Forum

November 13-16, 2017

Berjaya Times Square Hotel

Kuala Lumpur, Malaysia

<http://www.weef2017.org/>**IEOM Symposium on Lean Six Sigma**

Bogota, Colombia, May 13, 2016

Venue: Universidad del Rosario Campus

Symposium Chair: Professor Sandra Milena Chacon Sanchez, Director of Logistics and Production

Program, Universidad del Rosario, Bogota, Colombia

Website: <http://ieomsociety.org/ieom/bogota2016/>**IEOM STEM Poster Competitions for High School and Middle School Students**Website: <http://ieomsociety.org/ieom/stem/>

The IEOM Society (Industrial Engineering and Operations Management Society) is organizing the IEOM STEM Poster Competition for Middle School and High School students in the USA and globally. 2017

IEOM STEM Poster Competitions for Middle Schools and High Schools:

- IEOM STEM Poster Competition – California (San Jose – Sofia University)
- IEOM STEM Poster Competition – Michigan (Southfield – Lawrence Tech)
- IEOM STEM Poster Competition – Oregon (Klamath Falls – Oregon Tech)
- IEOM STEM Poster Competition – West Virginia (Huntington – Marshal University)
- IEOM STEM Poster Competition – Arkansas (Jonesboro – Arkansas State University) along with the 61st Northeast Arkansas Regional Science Fair (NEARSF)

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## IEOM Student Chapter at Al Akhawayn University, Ifrane Morocco

**FACULTY ADVISOR:**  
**Dr. Ilham Kissani**  
 Engineering & Management  
 Science  
 School of Science & Engineering



## IEOM Student Chapter at Ecole Mohammadia d'Ingénieurs (EMI) Mohammed V University, Rabat, Morocco

**COMMITTEE:**

Président: Mohamed BAHTAOUI  
 Vice-Président: Hajjout Tarik  
 Secretary: Mehdi Mounjid  
 Treasurer: Adnane Miri  
 Director of Webmaster: Youness Jarmouni  
 Director of Social Media: Younes Salim  
 Director of Program: Lamyae Nabiih  
 Director of Membership: Zineb El Ghali  
 Director of Communication: Salma Boutarf


**Faculty Advisors:**

Dr. Abdelaziz Berrado  
 Dr. Loubna Benabbou



## IEOM Society of France

[www.ieomsociety.org/ieom/france/](http://www.ieomsociety.org/ieom/france/)

<p><b>President</b></p> <p><b>Linda Zhang, Ph.D.</b>                  Professor, Operations Management                  IÉSEG School of Management                  Lille, France</p> 	<p><b>COMMITTEE</b></p>	
	<p><b>Dr. Zied Hajej</b>                  Associate Professor                  LGIPM-University of Lorraine                  Metz Cedex                  France</p>	<p><b>Ali Siadat (Ph.D., HDR)</b>                  Professor                  Arts et Métiers ParisTech de METZ                  Metz, France</p>
	<p><b>Élise Vareilles (Ph.D., HDR)</b>                  Associate Professor                  ORKID Team leader                  CGI- Mines Albi                  Albi, France</p>	<p><b>Thierry Coudert (Ph.D., HDR)</b>                  Assistant Professor                  LGP laboratory                  University of Toulouse, INP-ENIT                  Tarbes, France</p>

# Upcoming Events

## 8<sup>th</sup> IEOM International Conference

Hilton Hotel, Bandung, Indonesia, March 6-8, 2018

Conference Website: [www.ieomsociety.org/ieom2018/](http://www.ieomsociety.org/ieom2018/)



International Conference on  
**Industrial Engineering and  
Operations Management**

Bandung, Indonesia, March 6-8, 2018

IEOM Society Venue: Hilton Hotel Bandung



## 2<sup>nd</sup> IEOM European Conference

Paris, France

July 26 - 27, 2018

[www.ieomsociety.org/paris2018/](http://www.ieomsociety.org/paris2018/)



International Conference on  
**Industrial Engineering and  
Operations Management**

Washington DC, USA, Sept. 27-29, 2018

IEOM Society Venue: University of the District of Columbia



[www.ieomsociety.org/dc2018/](http://www.ieomsociety.org/dc2018/)