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 International

[Image]
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 1st 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 21st 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 1st 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 Logistica, 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, Medellin, 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 Crop 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 Córdula, 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 Domicilos.com

With the great success of the Global Engineering Education Series of past IEOM conferences, the 1st 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.
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 corporate 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 Transporates 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”
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

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.

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, German, 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).
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

Enrique Sandoval  
Vice President and COO  
OCENSA  
Bogota, Colombia


"Broccol Effect, Building Operations Capacity"
Dr. Juan Diego Alzate
Fundador de Transprojects (Paris), Smart Grop Asia (China)
“Acredited Trainer” en Paris para International Chamber of Commerce (ICC) en Incoterms®.


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.

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 Corpsotativo 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

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

5:00 – 5:45, Thursday Keynotes International - Salon Esmeralda

Dr. Fernando Cámara
Director de Logistica 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.

“Logistica -Supermercados Ara Colombia”

6:00 – 6:30
Conference Closing and Certificate Delivery
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

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Dr. Emilio Insfran, Universitat Politècnica de València, Spain
Dr. Arun Kumar, RMIT University, Melbourne, Australia
Dr. Charles Mbohwa, University of Johannesburg, South Africa
Dr. Eui Park, North Carolina A&T State University, USA
Dr. Abdur Rahim, University of New Brunswick – Fredericton, Canada
Dr. Cristian Rusu, Pontificia Universidad Catolica de Valparaíso, Chile
Dr. Hamid Seifoddini, University of Wisconsin – Milwaukee, USA
Dr. Devdas Shetty, University of District of Colombia, USA
Dr. S P Sarmah, IIT-Kharagpur, India
Dr. Rosemary Seva, De La Salle University, Manila, Philippine
Dr. Ing Eckart Uhlmann, Fraunhofer-Institute for Production Systems and Design Technology IPK, Germany
Dr. Bernardo Villarreal, Universidad de Monterrey, Mexico
Dr. Rushan Ziatdinov, Dept. of Industrial & Management Engineering, Keimyung University, Daegu, South Korea
IEOM Support Committee

Dr. Akand Islam, IEOM Society International  
Dr. Taufiqul Islam, IEOM Conference Secretariat  
Dr. M. Khadem, Sultan Qaboos University, Oman  
Prof. Don Reimer, Lawrence Technological University, USA  
Dr. Abdur Rahim, University of New Brunswick at Fredericton, Canada

Submissions Received from Countries and Territories

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<td>5. Canada</td>
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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. Francesco 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 Engenhria 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 Commitee 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 acessor at Undergraduate Pro-rectory 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 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 Politécnica de Valencia, 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 Itajai
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. Service paradigm is taking an important role. This talk will discuss about these technology challenges and opportunities for 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) 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).
Diversity isn’t just about gender, culture, age or lifestyle. It’s about everything that makes us unique—our talents, ideas, contributions and experiences. A corporate culture that promotes personal growth can only be achieved by fostering creativity, productivity and mutual respect. Diversity fuels our innovation. And that’s what has made Siemens successful for over 160 years. By creating a diverse workforce, we strive to gain the respect of our employees, customers and communities.

siemens.com/plm/diversity
### Program Matrix

#### October 25 (Wednesday)

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<td>Mr. Edgar Higuera Gomez, Gerente de Logística, Transporte e Infraestructura de la ANDI - Salón Esmeralda “Retos y Oportunidades del Transporte y la Logística”</td>
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<td>Leonardo E. Wilinski, VP South America Channel, SIEMENS Industry Software, Digital Factory Division, Product Lifecycle Management, Sao Paulo, SP, Brazil. Salón Esmeralda</td>
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<td>KEYNOTE: Mr. Lope Hugo Barrero, Associate Professor and Chair – Dept. IE, Pontificia Universidad Javeriana, Bogotá. <strong>Esmeralda I</strong> Global Engineering Education Undergraduate Student Paper Competition Supply Chain Management Lean and Six Sigma Operations Research &amp; Management Project Management</td>
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<td>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</td>
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<td>KEYNOTE: Mr. Gil Lugo, President, Lean ISO Experts, Inc., USA</td>
<td>Global Engineering Education</td>
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<td>Logistics Management</td>
<td>Production Planning and Management</td>
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<td>Inventory Management</td>
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<td>KEYNOTE: Prof. Don Reimer, President, The Small Business Strategy Group, USA</td>
<td>Global Engineering Education</td>
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<td>Logistics Management</td>
<td>Decision Sciences</td>
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<td>Automation and Control</td>
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<td>10:30</td>
<td>Sr. Enrique Sandoval, Vicepresidente de Operaciones de OCENSA, Bogota - Salón Esmeralda “Efecto Broccoli, construcción de capacidad de operaciones”</td>
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<td>Mr. Juan Diego Alzate, Fundador de Transprojects (Paris), Smart Grop Asia (China) - Salón Esmeralda. &quot;El futuro de la distribución basado en 10 Mega-Tendencia de la Supply Chain&quot;</td>
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<td>Mr. Rodolfo Sabonge, Ex Vicepresidente del Canal de Panamá - Salón Esmeralda “Prospectiva de la logistica regional y su impacto en las cadenas de suministro”</td>
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<td>2:15</td>
<td>Mr Gian Paolo Gandini, Director Corporativo de Compras Belcorp - Salón Esmeralda “La Colaboración como Clave en el desarrollo de La Cadena de Abastecimiento”</td>
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<td>3:00</td>
<td>Conference Awards and Recognitions - Salón Esmeralda</td>
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<td>4:30</td>
<td>Break</td>
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<td>5:00</td>
<td>KEYNOTE: Dr. Fernando Cámara Director de Logistica Jerónimo Martins ARA.</td>
<td>Global Engineering Education</td>
<td>Facilities Planning &amp; Human Factors – Esmeralda II</td>
<td>Engineering Education</td>
<td>Logistics Management</td>
<td>Case Studies</td>
<td>Engineering Management</td>
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<td>6:00</td>
<td>Conference Closing and Certificate Delivery</td>
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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

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"

9:00 – 10:00, October 25 (Wednesday)  **Global Engineering Education**

**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
### Undergraduate Student Paper Competition

**Session Chair:** Prof. Don Reimer, Lawrence Tech, Michigan, USA

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<tr>
<td>3</td>
<td>The Implementation Model of Smart Logistic Transport: Engineering Economic Analysis of Internet of Things (IoT)</td>
<td>Muhammad and Rahmat Nurcahyo, Industrial Engineering (IE) Department, University of Indonesia, Depok, West Java, Indonesia</td>
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</table>
| 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 Lícorera Del Cauca | Nora Fernanda Arciniegas Sánchez and Diego Espinosa, Faculty of Engineering, Fundación Universitaria de Popayán, Popayán, Colombia  
Juan Manuel Segura Mosquera, Industria Lícorera del Cauca, Popayán, Colombia  
Jaime Humberto Mendoza Chacón, Faculty of Engineering, Fundación Universitaria de Popayán, Popayán, Colombia |
| 282 | Optimization of times to improve the perception of the attention to the user in the HUM (Méderi)  | Valeria Mendoza Coles and Lina Maria Garcia, Logistic and Production Management, Universidad del Rosario, Bogotá, Colombia |

### Supply Chain Management

**Session Chair:** Oscar Fabián Velásquez Rodríguez, Universidad Nacional de Colombia, Bogotá, Colombia

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<tr>
<th>ID</th>
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<th>Authors</th>
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| 78  | Stochastic inventory control and distribution of blood products      | Andrea Pirabán Ramírez, Université de Technologie de Troyes, Troyes, France  
Nacima Labadie, ICD-LOSÍ (UMR-STMR CNRS 6279), Université de Technologie de Troyes, Troyes, France |
| 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 |
| 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 |

### Lean and Six Sigma

**Session Chair:** Diego Martínez, University of Monterrey, México

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<th>ID</th>
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<td>44</td>
<td>Enhancing Competitiveness of Ethiopian Metal and Steel Industries through Lean Manufacturing</td>
<td>Shimelis Tilahun and Daniel Kitaw, Addis Ababa Institute of Technology, Ethiopia</td>
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<td>77</td>
<td>An exploratory research about lean manufacturing implementation and behaviors of multi-level leadership</td>
<td>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</td>
</tr>
<tr>
<td>98</td>
<td>Lean Six Sigma for the Improvement of Services in Higher Education Institutions</td>
<td>David Rodrigo Guerrero Moreno and Claudia Cristina Bocanegra Herrera, Facultad de Ingeniería, Universidad Santiago de Cali, Calle 5 # 62-00 Barrio Pampalinda, Colombia</td>
</tr>
</tbody>
</table>
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 Bio-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 Bio-Bío, Departamento de 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 delBio-Bío, Departamento de Ingeniería 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 via 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

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

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

2:00 – 2:30 pm (WEDNESDAY)

Dr. Augusto Loureiro da Costa
Associate Professor, Department of Electrical Engineering
Programa de Post-graduate Engenhria 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
### Undergraduate Student Paper Competition

**Session Chair:** Prof. Don Reimer, Lawrence Tech, Michigan, USA

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<tr>
<td>87</td>
<td>WEEE Management: Approach of Reverse Logistics at Higher Education Institutions</td>
<td>Luis Augusto Valencia Rivera and Claudia Cecilia Peña Montoya, Engineering Faculty, Universidad Santiago de Cali, Colombia</td>
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<td>90</td>
<td>Propuesta De Un Modelo Multicriterio Para Seleccionar Estrategias De Logistica Inversa De Residuos Hospitalarios Aprovechables</td>
<td>Paola Andrea Caicedo Jiménez and Vivian Lorena Chud Pantoja, Ingeniería industrial, Universidad Santiago de Cali, Santiago de Cali, Valle del Cauca</td>
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<td>92</td>
<td>Increase of the number of internal trips in a steel company: A case of study.</td>
<td>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</td>
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<td>95</td>
<td>Inventory supply model for perishable products. The Calicarnes case</td>
<td>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</td>
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### Supply Chain Management

**Session Chair:** Claudemir L. Tramarico, São Paulo State University (UNESP), Guaratinguetá, SP, Brazil

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<td>212</td>
<td>Modelo de gestión de riesgos logísticos. Aplicación Ingenio Azucarero</td>
<td>Angela María Caicedo Acosta and 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</td>
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<td>230</td>
<td>Sustainability challenges in the food supply chains of developing countries: a systematic review of literature</td>
<td>Lilian Adriana Borges, Pro-vice-chancellor’s Office for Research, UNIDAVI, Rio do Sul, Brazil; Usha Ramanathan, College of Business Law &amp; Social Sciences, Nottingham Business School, Nottingham Trent University, Nottingham, United Kingdom</td>
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<td>235</td>
<td>A cost-effective collaborative inventory management strategy between non-competitor companies; a case study</td>
<td>Carlos Otero and Rene Amaya, Department of Industrial Engineering, Universidad del Norte, Barranquilla, Colombia</td>
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<td>244</td>
<td>Plastic Solid Waste Recycling and the Significance of Reverse Logistics in Developing Economies</td>
<td>Bupe G Mwanza and Charles Mbohwa, School of Engineering Management, University of Johannesburg, South Africa</td>
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<td>252</td>
<td>The impact of risk management process on supply chain performance: An exploratory case study in a beverage manufacturing organization</td>
<td>N. Sukdeo, Department of Quality and Operations Management, University of Johannesburg, Gauteng, South Africa</td>
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**ID 115** Multi-Criteria Analysis of Advanced Planning System Implementation

Claudemir L. Tramarico, Valério A. P. Salomon and Fernando A. S. Marins, São Paulo State University (UNESP), Engineering School, Campus Guaratinguetá, Guaratinguetá, SP, 12516-410, Brazil
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<th>Session Time</th>
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<th>Location</th>
<th>Session Chair</th>
<th>Presenters</th>
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| 2:00 – 3:30 pm, Oct 25 | **Lean and Six Sigma**                           | Salon Rubi     | 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 Ingenieria 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 Muyakufa, Department of Operations and Quality Management Engineering, University Of Johannesburg, South Africa |
| 2:00 – 3:30 pm, Oct 25 | **Operations Research and Management**            | Salon Hade     | 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 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, Oct 25 | **Project Management**                           | Salon Topación | 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

3:30 – 4:00  Break

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"

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

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, Córdoba, Quindío, Colombia
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<td>Operation Management in Hospitals: A Literature Review</td>
<td>Riccardo Maccaferri Gonzalez, Fernando Gonzalez Aleu, Luz Maria Valdez and Jenny Diaz</td>
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<td>Department of Engineering, Universidad de Monterrey, San Pedro Garza Garcia, NL 66238, México</td>
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<td>Competencies to adopt Industry 4.0 for operations management personnel at automotive</td>
<td>Milagros Díaz Bermúdez, Academic Coordinator of Engineering Management Program, Univ. of</td>
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<td>parts suppliers in Nuevo Leon</td>
<td>Monterrey, Nuevo Leon, Mexico</td>
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<td>Success Factors Comparison in the Logistics Clusters Located in East Asia-Pacific, North</td>
<td>Rubén Rendón Benavides, Bachelor’s Student in Industrial and Systems Engineering,</td>
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<td>America, and Western Europe. A Systematic Literature Review</td>
<td>Universidad de Monterrey, San Pedro Garza Garcia, NL, 66238, Mexico</td>
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<td>Teresa Verduzco-Garza, Division of Engineering &amp; Technologies,</td>
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<td>Universidad de Monterrey, San Pedro Garza Garcia, NL, 66238, Mexico</td>
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<td>261</td>
<td>A linear programming model for integrated baked production and distribution planning</td>
<td>Magano Molefe, Department of Quality and operations Management, University of Johannesburg,</td>
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<td>with Raw material and routing consideration</td>
<td>Auckland Park, RSA</td>
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<td>Supply Chain Quality Management SCQM: Understanding how it integrates into the service</td>
<td>Andres Lopez Astudillo, Department of Industrial Engineering,</td>
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<td>and manufacturing sectors. Case studies in a construction and a food companies</td>
<td>Icesi University, Cali, Valle del cauca, COL</td>
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<td>Melenys Hinestroza Moreno, Departament of Quality Management, LATCO, Cali,</td>
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<td>Valle del cauca, COL</td>
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<td>Edilma Liliana Chacon Tabares, Departament of Quality Management, Harinera del Valle,</td>
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<td>Francisco Balbastre Benavent, Juan José Renau Piqueras Dept. of Management, Valencia</td>
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<td>University, Valencia, Valencia, Valencia, ESP</td>
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<td>Ana Redondo Cano, Juan José Renau Piqueras Department of Management, Valencia University,</td>
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<td>Valencia, Valencia, ESP</td>
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<td>275</td>
<td>Cloud-based Manufacturing Ecosystem – Application Development</td>
<td>Petri Helo, Valeriia Boldosova and Rayko Toshev, Networked Value Systems,</td>
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<td>University of Vaasa, Vaasa, Finland</td>
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<td>Drivers of Reverse Logistics in the Plastic Industry: Producer’s Perspective</td>
<td>Bupe G Mwanza and Charles Mbohwa, School of Engineering Management, University of</td>
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<td>Johannesburg, South Africa</td>
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<td>53</td>
<td>Minimización de tiempos y costos en los procesos de creación de una empresa a través de</td>
<td>Luisa Fernanda Campos Bohórquez, Mariana Bernal Rivera, Andrés Felipe Guzmán Cárdenas and</td>
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<td>herramientas de calidad con un enfoque de teoría de redes</td>
<td>Jeimy Andrea Quiroga Ardila, Ingeniería Industrial, Universidad de la Sabana, Facultad de</td>
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<td>Ingeniería, Chía-Cundinamarca</td>
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<td>Mejoramiento de procesos bajo el enfoque Control Estadistico de Procesos y modelos A.R.I.</td>
<td>Juan Carlos Herrera Vega, Germán Herrera Vidal and Bruno De Jesús Rahmer, Ingeniero</td>
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<td>M.A. Un caso de estudio</td>
<td>Industrial, Cartagena de Indias, Colombia</td>
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<td>114</td>
<td>A Multi-fractal Spectrum Analysis for online Structural Health Monitoring</td>
<td>Mahmoud Z. Mistarihi, Dept. of Industrial Engineering, Hijjawi faculty of Engineering</td>
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<td>Technology, Yarmouk University, Irbid, Jordan</td>
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<td>Zhenyu (James) Kong, Grado Dept. of Industrial and Systems Engineering,</td>
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<td>Virginia Polytechnic Institute and State University, USA</td>
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<td>Satish T. S. Bukkapatnam, Department of Industrial and Systems Engineering, Texas A&amp;M</td>
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<td>University, College Station, TX, USA</td>
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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 García 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., Mexico

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 Guinara 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 María Cancelado C. and Ana María 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 García 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 Juán 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 Economia, Universidad Sergio Arboleda, Bogotá, Colômbia
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

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 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 and 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 Slg Method
Lucas Reis, Brazil
Fáber Giraldo, Universidad del Quindío, Colombia
Liane Kipper, Universidade de Santa Cruz do Sul – UNISC, Brazil

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
**October 26 (Thursday)**

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

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

**KEYNOTE - Salon Esmeralda I**

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

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**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 Itajai
Rio do Sui, Brazil

8:00 - 9:00, October 26 (Thursday)
Sustainability and Green Systems
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
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
Session Chair: Alvaro De Jesus Guarin Grisales, Universidad EAFIT, Medellín, Colombia

ID 29 A Review of Planning Production and Energy Efficiency Models
Bonnel Mejía-Mayaa, Vanessa Sierra-Zuluagab & Javier Fernández-Ledesmac
a Facultad de Ingeniería, Universidad Pontificia Bolivariana, Medellín, Colombia
b Facultad de Ingeniería, Universidad Pontificia Bolivariana, Medellín, Colombia
c 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

8:00 - 9:00, October 26 (Thursday) Manufacturing and Design
Session Chair: Lina Nataly Alvarado Riaño, National University of Colombia at Bogotá, Colombia

ID 59  Improved Wire Rope Lubricator Design for a Mine
Ignatí 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

8:00 - 9:00, October 26 (Thursday) Inventory Management
Session Chair: Narges Shahraki, Michael Foods Inc., MN, USA

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
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

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

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<td>Prof. Eduardo Cardoso Moraes</td>
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<td>Federal Institute of Alagoas</td>
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<td>Federal University of Bahia, Salvador, Brazil</td>
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<td><em>Engineering education challenges with advances of Industrial Revolution - Industry 4.0</em></td>
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<td>9:30 – 10:00</td>
<td>Ing./MFN Gabriel Suarez</td>
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<td>Aguascalientes, Ags. México</td>
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<td>IEEE Aguascalientes Section Chair</td>
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9:00 – 10:00, October 26 (Thursday)  
**Sustainability and Green Systems**  
Salon Turquesa

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<td>Nuri Cihat Onat, Murat Kucukvar, Parinaz Toufani and Muhammad Ali Haider, Department of Industrial Engineering, Istanbul Sehir University, Istanbul, Turkey</td>
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<td>Murat Kucukvar, Nuri Cihat Onat, Muhammad Ali Haider and Mohammad Abdullah Shaikh, Department of Industrial Engineering, Istanbul Sehir University, Istanbul, Turkey</td>
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9:00 – 10:00, October 26 (Thursday)  
**Logistics Management**  
Session Chair: Gloria Mercedes López Orozco, Universidad Autónoma de Occidente, Cali, Colombia

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<td>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</td>
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</table>
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

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10:00 - 10:30 Break

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

Enrique Sandoval
Vice President and COO
OCENSA
Bogota, Colombia

“Broccol Effect, Building Operations Capacity”

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”

1:30 – 2:15 pm Lunch

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

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

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

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

4:30 – 5:00 Break

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

Dr. Fernando Cámara
Director de Logística Jerónimo Martins ARA

“Logistica -Supermercados Ara Colombia”
5:00 – 6:00, October 26 (Thursday)  |  Global Engineering Education  |  Salon Diamante

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

5:00 – 5:30 pm (THURSDAY)

**Dr. Vítor M. Caldana**
Professor
Dept. de Eletroeletrônica
IFSP - Instituto Federal de São Paulo - Campus Sorocaba
Santana de Parnaiba, 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*

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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<td>Santiago-Omar Caballero-Morales, Universidad Popular Autónoma del Estado de Puebla A.C., Mexico</td>
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<th>Analysis the Factors of Cognitive Ergonomics Phenomena on Electronic Book (eBook) Readers</th>
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<td>Muhammad and Rahmat Nurcahyo, Industrial Engineering (IE) Department, University of Indonesia, Depok, West Java, Indonesia</td>
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<td>Mervyn Márquez y Miguel Márquez, Departamento de Ingeniería Industrial, Universidad Nacional Experimental del Táchira, San Cristóbal, Venezuela</td>
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<td>Lawrence J. H. Schulze, Department of Industrial Engineering, University Houston, Houston, TX, USA</td>
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<td>Mehmet Salih Goceri, Management Information System, Santa Clara University, Santa Clara, CA, 95051, USA</td>
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<td>Tugba Goceri, Santa Clara, CA, 95051, USA</td>
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5:00 – 6:00, October 26 (Thursday)  |  Engineering Education  |  Salon Turquesa

**Session Chair:** Víctor H. Molina, Universidad Técnica de Ambato, Ambato, Ecuador

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<td>Márcia Terra da Silva, Post-Graduation Program for Industrial Engineering – PPGEP, UNIP - University Paulista, São Paulo, SP, Brazil</td>
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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 Martínez, 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
Maria 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
Víctor H. Molina, Grupo de Decisiones e Innovacion, Facultad de Ciencia e Ingeniería 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 Ingeniería 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, Cali, Colombia

ID 236  Modelo Logístico Para Acopio Y Distribución De Alimentos Críticos. Caso Valle Del Cauca
Valentina Restrepo Peñaz and Nelson Ricardo Becerra Escobar, Facultad de Ingeniería - Departamento de Operaciones y Sistemas, Universidad Autónoma de Occidente, Cali, Colombia
Gloria Mercedes López Orozco, Facultad de Ingeniería - Departamento de Operaciones y Sistemas, Universidad Autónoma de Occidente, 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 Logisticas
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 Patricía 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
### Session Chair: Juan Jesús Arenas, Pontificia Universidad Católica del Perú, San Miguel, Lima, Perú

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<td>Comparison of EMS in Project Phase and a Fully Implemented One: Case Study</td>
<td>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 Ignatío Madanhire, Department of Mechanical Engineering, University of Zimbabwe, Mt Pleasant, Harare, Zimbabwe</td>
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<td>100</td>
<td>Temporary Clusters: A New Approach for Manufacturing SME Management</td>
<td>Ahmed Mohib, Department of Industrial Engineering, Fayoum University, Fayoum, Egypt Ahmed Deif, Industrial Technology and Packaging Department, California Polytechnic State University, SLO, USA</td>
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<td>MicroErp, a computer solution for small and medium-sized enterprises: Case study of collaboration between university and industry</td>
<td>Juan Jesús Arenas and Freddy Paz, Pontificia Universidad Católica del Perú, Engineering Department, San Miguel, Lima 32, Perú</td>
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### Session Chair: Bupe G Mwanza, University of Johannesburg, South Africa

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<td>Impact of EMS (ISO 14001) on a Manganese Mine Operations in Gabon: Case Study</td>
<td>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 Ignatío Madanhire, Department of Mechanical Engineering, University of Zimbabwe, Mt Pleasant, Harare, Zimbabwe</td>
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<td>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</td>
<td>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</td>
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<td>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 Acandi en el departamento del Chocó</td>
<td>Efrain Mancipe Contreras, Universidad Distrital Francisco Jose De Caldas, Facultad De Ingeniería, Maestría En Ingeniería Industrial, Bogotá D.C</td>
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### Session Chair: Johanna Trujillo Díaz, Fundación Universitaria Cafam, Bogota, Colombia

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<td>Sanita Meijere and Tatjana Tambovceva, Faculty of Engineering Economics and Management, Riga Technical University, Latvia</td>
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<td>Javier Darío Fernández-Ledesma, Dep. of Industrial Eng., Universidad Autónoma Latinoamericana, Medellín, Antioquia, Colombia</td>
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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 Metalmecánico 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 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
IEOM Student Chapters

IEOM Student Chapter can help students in the development or enhancement of their important skills, including: leadership, communications, organization, planning, time management, budgeting and finance, and other professional skills. Those can help to prepare for their career and to be successful in longer term. If any student group of any educational institute is interested to form an IEOM Student Chapter, please submit chapter establishment form. Contact: info@ieomsociety.org.

Suggested Student Chapter Activities

Workshops and Seminars  Career Development  Membership Building
Industry Speakers  Networking  Community Outreach
Plant Tours  Poster and Paper Contest  Alumni Relations
Communication Development  Fund Raising

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

Establish Your Institution IEOM Student Chapter
Visit IEOM Website for details: www.ieomsociety.org

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• Conferences and Seminars
• Career and Leadership Development

IEOM Professional Chapters

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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/](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/

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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:
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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:

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<td>Dania Memish</td>
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<td>Presentation Skills</td>
<td>Seminar</td>
<td>Walaa Othmani</td>
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<td>P&amp;I</td>
<td>Workshop</td>
<td>Bushra Al-Khalidi</td>
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### IEOM Partner Events

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<td>George R. Brown Convention Center &amp; Hilton Americas-Houston Hotel</td>
<td>Houston Hotel</td>
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<td>Chair: William Klimack, Chevron</td>
<td>Houston, TX</td>
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<td><strong>IFEES (International Federation on Engineering Education Societies)</strong></td>
<td>November 13-16, 2017</td>
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<td>World Engineering Education Forum</td>
<td>Berjaya Times Square Hotel</td>
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### 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/](http://ieomsociety.org/ieom/bogota2016/)

### IEOM STEM Poster Competitions for High School and Middle School Students

Website: [http://ieomsociety.org/ieom/stem/](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 – Marshall 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:
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Engineering & Management Science
School of Science & Engineering

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

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Upcoming Events

8th IEOM International Conference
Hilton Hotel, Bandung, Indonesia, March 6-8, 2018
Conference Website: www.ieomsociety.org/ieom2018/

2nd IEOM European Conference
Paris, France
July 26 - 27, 2018
www.ieomsociety.org/paris2018/

International Conference on
Industrial Engineering and
Operations Management
Washington DC, USA, Sept. 27-29, 2018
Venue: University of the District of Columbia
www.ieomsociety.org/dc2018/