IEOM Global Engineering Education

Hyatt Regency Dubai

United Arab Emirates (UAE)

March 3-5, 2015

Website: http://iieom.org/ieom/global-engineering-education/

IEOM Society addresses the issues of Global Engineering Education. There are different levels of readiness of engineering graduates from various parts of the world. One of the main themes of this series is how to reduce the readiness gap around the world. Are the engineering graduates ready to take on the challenges of the current global economy? The special focus is given to Industrial Engineering, Manufacturing Engineering, Systems Engineering, Information Engineering, Engineering Management, etc. With the great success of Global Engineering Education Series of last event in Bai, IEOM 2015 Dubai Conference will have a dedicated session for the Global Engineering Education where distinguished speakers will discuss the readiness of engineering graduates for workforce around the world. Thirty six featured speakers will be from various part of the world to address engineering education challenges and opportunities.

Power point presentations will be published in the conference proceeding and summary of the talk and bio of the speakers will be printed in the conference program.

Readiness and Competence of Engineering Graduates

Global Engineering Education Chairs

Dr. Funso Falade, Professor at University of Lagos, Nigeria and President, African Engineering Education Association

Dr. Abu Masud, Interim Dean of Graduate School and Boeing Global Engineering Professor, Wichita State University, Kansas, USA

Contact: ieom-society@iieom.org
# PROGRAM (Global Engineering Education)

**March 3, 2015 (Tuesday)**

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<tr>
<td>07:00 – 17:00</td>
<td>Registration</td>
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<tr>
<td>08:00 – 08:30</td>
<td>Welcome</td>
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<tr>
<td>08:30 – 09:30</td>
<td>Opening Keynote: Dr. G. Don Taylor, Charles O. Gordon Professor and Department Head, Grado Dept. of ISE, Virginia Tech, USA and Past IIE President</td>
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<tr>
<td>09:30 – 09:45</td>
<td>Break</td>
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<tr>
<td>09:45 – 11:15</td>
<td><strong>Session I: ENGINEERING CURRICULUM</strong></td>
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<td></td>
<td>Dr. Fumso Falade, University of Lagos, Nigeria and President, African Engineering Education Association</td>
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<td>Dr. Raid Al-Azmar, Professor of Industrial Engineering, Abu Dhabi University, UAE</td>
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<td>Dr. Soumaya Yacout, École Polytechnique de Montréal, Canada</td>
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<tr>
<td>11:15 – 11:30</td>
<td>Break</td>
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<tr>
<td>11:30 – 13:00</td>
<td><strong>Session II: INDUSTRIAL ENGINEERING AND MANAGEMENT EDUCATION</strong></td>
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<td></td>
<td>Dr. Khalid Hafeez, University of Sharjah, UAE</td>
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<td>Dr. Hakan Butuner, IIE Turkey Professional Chapter, President</td>
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<td>Dr. José Antonio Heredia Alvaro, University Jaume I, Spain</td>
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<td>13:00 – 14:00</td>
<td>Lunch Keynote: Moraya S. AlGahtani, Division Head, Operational Excellence Department, Saudi Aramco</td>
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<tr>
<td>14:00 – 15:30</td>
<td><strong>Session III: GLOBALIZATION OF ENGINEERING EDUCATION</strong></td>
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<td></td>
<td>Dr. Hans-Juergen Hoyer, Secretary General of the International Federation for Engineering Education Societies (IFlEES)</td>
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<td>Dr. Borna Dengiz, Dean, Engineering Faculty, Baskent University – Baglica Campus, Ankara, Turkey</td>
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<td>Dr. Muhammad H. Zaman, Boston University, USA</td>
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<tr>
<td>15:30 – 15:45</td>
<td>Break</td>
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<tr>
<td>15:45 – 17:15</td>
<td><strong>Session IV: ENGINEERING TEACHING AND LEARNING</strong></td>
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<tr>
<td></td>
<td>Dr. Hongyi Sun, Dept. of Systems Engineering and Engineering Management (SEEM), City University of Hong Kong</td>
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<td>Dr. Amy Zeng, Professor, Director of Industrial Engineering, Worcester Polytechnic Institute, Massachusetts, USA</td>
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<td>Dr. Ana Luisa Ferreira Andrade Ramos, University of Aveiro, Portugal</td>
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<tr>
<td>17:30 – 19:00</td>
<td>POSTER SESSION</td>
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**March 4, 2015 (Wednesday)**

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<th>Time</th>
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<tr>
<td>07:00 – 17:00</td>
<td>Registration</td>
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<tr>
<td>08:30 – 09:30</td>
<td>Morning Keynote: Chris J. Smith, Vice President &amp; Managing Director of Boeing Saudi Arabia</td>
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<tr>
<td>09:30 – 09:45</td>
<td>Break</td>
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<tr>
<td>09:45 – 11:15</td>
<td><strong>Session V: ENGINEERING CURRICULUM</strong></td>
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<tr>
<td></td>
<td>Dr. Gulnara Abtola, Eurasian National University, Astana City, Republic of Kazakhstan</td>
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<td>Dr. Kailash Bafna, Western Michigan University, USA</td>
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<td></td>
<td>Dr. Abdurrazag Ali Aburas, Tripoli University, Tripoli, Libya</td>
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<tr>
<td>11:15 – 11:30</td>
<td>Break</td>
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<tr>
<td>11:30 – 13:00</td>
<td><strong>Session VI: ASSESSMENT AND ACCREDITATION</strong></td>
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<td></td>
<td>Dr. Pamela McCauley Bush, University of Central Florida, USA</td>
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<td>Dr. S. C. Naik, Bhubaneswar, Odisha State, India</td>
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<td>Dr. Ezendu Arwa, University of Bedfordshire, UK</td>
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<tr>
<td>13:00 – 14:00</td>
<td>Lunch Keynote: Dr. Chris Backhouse, Professor of Product Innovation, Loughborough University, Leicestershire, UK</td>
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<tr>
<td>14:00 – 15:30</td>
<td><strong>Session VII: ENGINEERING EDUCATION</strong></td>
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<td>Dr. Alaa K. Ashmawy, Dean of the School of Engineering, American University in Dubai</td>
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<td>Dr. Abdur Rahim, University of New Brunswick, Fredericton, NB, Canada and Visiting Faculty, King Fahd Univ. of Petroleum and Minerals</td>
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<td>Dr. Ho Thanh Phong, Rector, International University – VNUHCM, Ho Chi Minh City, Vietnam</td>
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<tr>
<td>15:30 – 15:45</td>
<td>Break</td>
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<tr>
<td>15:45 – 17:15</td>
<td><strong>Session VIII: PANEL SESSION ON ENGINEERING EDUCATION</strong></td>
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<tr>
<td></td>
<td>Dr. Fumso Falade, University of Lagos, Nigeria and President, African Engineering Education Association</td>
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<td>Dr. Hans-Juergen Hoyer, Secretary General of the International Federation for Engineering Education Societies (IFlEES)</td>
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<td>Dr. Abu Masud, Wichita State University, Wichita, Kansas, USA</td>
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<td>Dr. Ibrahim Mohammed Al-Harkan, Dean of Graduate Studies, King Saud University, Riyadh, Saudi Arabia</td>
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<td>19:00 – 22:00</td>
<td>CONFERENCE AWARD DINNER, AND CULTURAL PROGRAMS</td>
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<td>Award Keynote: Hulas King, Director GO PLM &amp; Global Community Relations, SIEMENS PLM Software</td>
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**March 5, 2015 (Thursday)**

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<tr>
<td>07:00 – 15:00</td>
<td>Registration</td>
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<tr>
<td>08:30 – 09:30</td>
<td>Morning Keynote: Syed Mohammed Aumir, Senior Executive Vice President, Digital Factory, Siemens Middle East</td>
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<td>09:30 – 09:45</td>
<td>Break</td>
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<tr>
<td>09:45 – 11:15</td>
<td><strong>Session IX: ENGINEERING EDUCATION</strong></td>
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<td></td>
<td>Dr.-Eng. Eldon Caldwell, Director, Industrial Engineering Department, University of Costa Rica</td>
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<td>Dr. C. B. Gupta, Birla Institute of Technology &amp; Science (BITS)</td>
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<td>Dr. Anil Brahmanandand, Government College of Engineering, Barton Hill, Trivandrum, Kerala, India</td>
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<tr>
<td>11:15 – 11:30</td>
<td>Break</td>
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<tr>
<td>11:30 – 13:00</td>
<td><strong>Session X: HIGHER EDUCATION IN ENGINEERING</strong></td>
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<td>Dr. Abdel Magid Hamouda, Qatar University, Qatar</td>
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<td>Dr. Ibrahim Mohammed Al-Harkan, King Saud University, Riyadh, Saudi Arabia</td>
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<td>Dr. Kudret Demirli, Khalifa University, Abu Dhabi, UAE</td>
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<tr>
<td>13:00 – 14:00</td>
<td>Lunch Keynote: Dr. Leland Blank, Professor and Dean of Engineering, American University of Sharjah, UAE and Past IIE President</td>
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<td>14:00 – 15:30</td>
<td><strong>Session XI: STUDENT CENTERED ENGINEERING EDUCATION</strong></td>
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<td>Dr. Choe-Ming Chan, Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor, Malaysia</td>
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<td>Edward Williams, University of Michigan - Dearborn, USA</td>
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<td>Slobodan Urdareshki, Western Michigan University, USA</td>
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<td>15:30 – 15:45</td>
<td>Break</td>
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<tr>
<td>15:45 – 17:15</td>
<td><strong>Session XII: ENGINEERING EDUCATION</strong></td>
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<td>Dr. Peter Toth, Obuda University, Budapest, Hungary</td>
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<td>Dr. Seifeddine Kadry, American University of the Middle East, Kuwait</td>
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<td>Dr. David Koonce, Ohio University, Athens, Ohio, USA</td>
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<td>17:15 – 18:00</td>
<td>Closing Keynote</td>
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DISTINGUISHED SPEAKERS

Tuesday (March 3, 2015)

Session I: ENGINEERING CURRICULUM
Session Chair: Dr. Funso Falade, University of Lagos, Akoka, Lagos, Nigeria

09:45 – 10:15 (Tuesday)

Dr. Funso Falade
Department of Civil & Environmental Engineering
University of Lagos, Akoka, Lagos, Nigeria

President, African Engineering Education Association

Engineering Research: A Tool for Development of Manufacturing Industry in Developing Countries – A Case Study in Nigeria

Summary: This paper presents a methodology that facilitates a new Quality Function Deployment (QFD) application for quality improvement in the field of Engineering Education. The focus is on the initial accreditation process of engineering programs. The objective is to improve the quality of proposed engineering program as well as the performance of running programs. To this end, QFD is utilized to illustrate the translation of program requirements into learning outcomes, and assessment tools. Program requirements are set by local accreditation agencies, program stakeholders, and the strategic plan of the hosting college/university. QFD is used to design program curriculum (courses and learning units) so that program learning outcomes are achieved. A subsequent QFD is also used to design the assessment tools of each course so that course learning outcomes are achieved. An example of QFD application to the initial accreditation of a Master of Project Management is used to illustrate the proposed methodology.

Bio: Falade Funso Alphonsus is a Nigerian and a Professor of civil engineering at University of Lagos, Nigeria. He earned Diploma in Quantity Surveying at Yaba College of Technology, Nigeria, in 1978. He completed his M.Sc (Civil Engineering) at the Moscow Institute of Civil Engineering in the USSR in 1984 and obtained PhD in Civil Engineering, from University of Lagos in 1998. Prof. Falade has authored over 70 articles and books on innovative construction materials and engineering education published in locally and internationally reputed journals as well as in proceedings of learned conferences. He has also published and edited two (2) textbooks. In February, 2014, he made public presentation of a book titled ‘Strengthening of Distressed Buildings’. He has researched into the structural properties of bamboo and bamboo technology for its successful incorporation as replacement of steel reinforcement in some structural elements. He has also researched extensively on Foamed Aerated Concrete. Prof. Falade has presented over 45 papers at workshops and seminars on such topics as Project Management, Quality Control, Maintenance of Facilities, and Contract Procurement Processes etc.

Prof. Falade is a member of some professional bodies both locally and internationally, including Fellow, The Nigerian Academy of Engineering, Fellow, Nigerian Society of Engineers, Fellow, African Engineering Education Association, Registered Engineers, Council for the Regulation of Engineering in Nigeria etc. He is a promoter of engineering education. He was the initiator of African Regional Conference on Engineering Education and the Chairman, Organizing Committee and the Editor of the Proceedings of the 1st, 2nd and 5th African Regional Conference on Engineering Education that were held at University of Lagos in 23rd – 25th September, 2002; 20th – 22nd September, 2004 and 9th -12th September, 2013 respectively. He is the President of the African Engineering Education Association (AEEA) and former Vice-President, International Federation of Engineering Education Societies (2009-20012). He was appointed UNESCO Consultant in 2005.

10:15 – 10:45 (Tuesday)

Dr. Raid Al-Aomar
Professor of Industrial Engineering
Director of Master of Engineering Management (MEM) program
Abu Dhabi University, UAE

Summary: This paper presents a methodology that facilitates a new Quality Function Deployment (QFD) application for quality improvement in the field of Engineering Education. The focus is on the initial accreditation process of engineering programs. The objective is to improve the quality of proposed engineering program as well as the performance of running programs. To this end, QFD is utilized to illustrate the translation of program requirements into learning outcomes, curriculum, and assessment tools. Program requirements are set by local accreditation agencies, program stakeholders, and the strategic plan of the hosting college/university. QFD is used to design program curriculum (courses and learning units) so that program learning outcomes are achieved. A subsequent QFD is also used to design the assessment tools of each course so that course learning outcomes are achieved. An example of QFD application to the initial accreditation of a Master of Project Management is used to illustrate the proposed methodology.

Bio: Dr. Raid Al-Aomar is a professor of Industrial Engineering and the director of Master of Engineering Management (MEM) program at Abu Dhabi University in the UAE. He holds a PhD in Industrial Engineering/Operations Research from Wayne State University in Detroit, USA. He has over 15 years of experience at companies and universities in Jordan, USA, and UAE with about 50 publications in the field of Industrial Engineering. He is also a professional trainer and a consultant on deploying Lean Six Sigma systems, Supply Chain, & Quality Management. He worked on many projects with the Auto Industry in Detroit and the industrial estates in Jordan and delivered many training courses to professionals in private and public companies in KSA, Bahrain, and the UAE. He is a co-author of “Simulation-based Lean Six Sigma and Design for Six Sigma” book from John Wiley. Dr. Al-Aomar’s research interests include Simulation-based Optimization, Operations Management, and Lean Six Sigma Systems.
Dr. Soumaya Yacout
Professor of Industrial Engineering and Operations Research
Department of Mathematics and Industrial Engineering
École Polytechnique de Montréal, Canada

Bio: Soumaya Yacout is Professor of Industrial Engineering and Operations Research in the Department of Mathematics and Industrial Engineering at École Polytechnique de Montréal, Canada. She received a D.Sc. in Operations Research from the Georges Washington University, U.S.A. in 1985, a B.Sc. in Mechanical Engineering in 1975 and a M.Sc. in Industrial Engineering in 1979 from Cairo University in Egypt, and also received Executive Training in Six Sigma, ISO9000 and in industrial auditing. She held the position of Dean of Engineering at the University of Moncton until 1999 and became the first woman to hold the position of Dean of Engineering for a Francophone University in Canada. She was appointed Academic Dean at École Polytechnique. From 2001 to 2004 she acted as member of the Higher Education and Research Committee of the Superior Council of Education of Québec. Since 1995, she has been a regular member of visiting teams for the accreditation of engineering programs by the Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers, and in 2010, she was nominated as member of the Strategic Projects Selection Panel for Competitive Manufacturing and Value-Added Products and Processes of the National Sciences and Engineering Research council of Canada.

Dr. Yacout has been recipient of the Natural Science and Engineering Research grants since 1991. She designed and taught courses on quality engineering, reliability and maintenance for undergraduate, graduate, and professional engineers in Canada and internationally. She supervised more than 40 masters and doctoral students. Her research interests include Condition Based Maintenance and optimization of decision making for product quality. She has more than 60 publications in journals including Quality Engineering, International Journal of Production Research, Computers and Industrial Engineering, IEEE Transactions, and more than 40 papers presented in international conferences, some of which received the best paper award. She is the co-editor and the co-writer of a book on minimal repair, invited editor of the special issue on Condition based Maintenance for the Journal of Intelligent Manufacturing, and invited coauthor of the book: Current Themes in Engineering Technologies. She received provisional patent of the software cbmLAD. She has been an invited speaker at the University of Toronto, the University of Windsor and Concordia University. She has been member of organizing committees of many international conferences such as the Canadian Operations Research Society Conference, the Industrial Engineering Conference, and the international Conference on industrial Engineering and Systems Management. She served as reviewer for many scientific journals such as Computers and Industrial Engineering, IEEE Transactions, International Journal of Production Research, Quality Engineering, Mechanical Systems and Signal processing, Journal of Intelligent Manufacturing, and European Journal of Operational Research. She is a senior member of the American Society for Quality, and a member of the Institute of Industrial Engineering, and the Canadian Operational Research Society.

Session II: INDUSTRIAL ENGINEERING AND MANAGEMENT EDUCATION
Session Chair: Dr. Khalid Hafeez, University of Sharjah, UAE

Dr. Khalid Hafeez
Professor, College of Business Administration
Management, Marketing and Public Administration
University of Sharjah, UAE

Theory of Core Competence: A Melting Pot for Engineering and Management Education

Bio: Professor Khalid Hafeez is Professor in Operations Management at the University of Sharjah United Arab Emirates. Before coming to the UAE Professor Hafeez was a tenure track professor and Head of Management system group at the York Management School, University of York UK. Prior to that he has been teaching at the Bradford Management School UK Executive MBA, which has been frequently ranked amongst the top ten in Europe, where he was also the founding Director for Centre for Entrepreneurship. He has also taught on the Masters, PhD and DBA programs at the Sheffield Business school and Cardiff University UK. In terms of management responsibilities he has served as the Dean of the e-School of Business and Quality Management at the Hamdan Bin Mohammed e University Dubai, Program Director for Executive MBA, Program Director for the MSc Organizational Development and Knowledge Management, and Project Management at the Sheffield Business School. He has served as technology transfer champion for the Yorkshire Universities for 7 years and in recognition of his services for education and community he was awarded Certificate of Merit from the House of Lord UK. Professor Hafeez has completed Executive Education Training programme at the Harvard Business School USA and is also a Certified Six Sigma Master Black Belt, and Certified Project Manager and EFQM European Assessor certified from Brussels and certified NLP trainer. Over the years he has supervised more than 12 PhD students to completion has published widely in key journals such as JORS, IJPE, IJPR and IEEE Engineering Management. Professor Hafeez is an internationally acclaimed researcher with over 900 worldwide citations. His publications in the area of “core competence” which he is going to speak about in this conference (IEOM 2014) have already attracted more than 600 citations.
Dr. Hakan Bütüner  
IIE Turkey Professional Chapter, President  
IMECO, President

Bio: Dr. Hakan Bütüner is a graduate of TED Ankara College. He received his B.Sc. in Industrial Engineering from Middle East Technical and MBA from Bilkent Universities; and Ph.D. in Engineering Management from the University of Missouri-Rolla. Dr. Bütüner has been active both in academic and professional lives for several years as a planning and programming manager and as a project manager in overseas, and started up and acted as a chairman of a new venture for bringing different and strong international franchising concepts to Turkey. Later he worked as a strategic planning and business development director of Bayındır Holding; as a SPEED (operations & profit improvement program) country manager of Siemens Business Services; and then as a general coordinator of Bell Holding. During the same periods, he was also lecturing in the Business Schools and/or Industrial Engineering Departments of Bilkent, Bosphorus, Bahcesehir and Yeditepe Universities. Currently, he is lecturing in Business Schools of Bahcesehir and Ozyegin Universities. Dr. Bütüner, currently, is acting as the affiliates of several US companies in industrial management and engineering consulting, training and software solutions field. He is also acting as the founder-president of Institute of Industrial Engineers – Turkish professional chapter. During his career path, Dr. Bütüner has participated in several projects both in Turkey and abroad. Additionally, he is the board member of Institute of High Performance Planners in USA. Author has several publications and books, and at the same time honored by the decision sciences society Alpha Iota Delta.

Dr. José Antonio Heredia Álvaro  
Industrial Systems Engineering and Design  
University Jaume I, Spain

Teaching Manufacturing Management to Engineers

Summary: A suitable approach to design the curriculum on manufacturing management for engineers is to adopt a process view of the system. Analyzing the job of the manufacturing directors we realize that their activities consist in managing the flow of materials, information and energy. Each of the flows can be analyzed as a process that transforms inputs into outputs using resources (personnel, financial and assets) and that is governed by the strategic objectives of the company. Management engineers should be trained to decide on the most adequate policy to follow in each situation. The case method is an excellent approach for the students to learn the decision frameworks and to develop critical social competencies. At difference to other management positions within the firm, it is expected that engineers not only contribute on deciding about the policy but also on translating it into specific process parameters and implementing it. This requires analytic competences to develop more detailed and quantitative models. Models to compute with rigor the values of process variables, to represent the work logic, and procedures to control its execution. In this contribution, different analytical and teaching methods are proposed.

Bio: José Antonio Heredia Álvaro, Industrial Engineer by University of Seville, PhD in Industrial Engineering and Professor of Manufacturing Systems at Universitat Jaume I. He has been visiting scholar at Cranfield University, UCLA and Tennessee Tech. His experience as professor includes teaching courses at undergraduate and graduated levels on manufacturing systems, quality engineering, stochastic modeling, process management and simulation. He has written several teaching books on the topic of production systems modeling and analysis. As researcher he has been continuously working in collaboration with European industry (ceramics, automotive, and ICT mainly) through research and consulting projects. He has led several large research projects at national and European level on manufacturing and information systems.

Session III: GLOBALIZATION OF ENGINEERING EDUCATION  
Session Chair: Dr. Hans-Juergen Hoyer, Marquette University, USA

Dr. Hans-Juergen Hoyer  
Secretary General of the International Federation for Engineering Education Societies (IFEES)  
Executive Secretary of the Global Engineering Deans Council (GEDC)  
Resident Scholar in Global Engineering at Marquette University

Bio: Hans J. Hoyer is the Secretary General of the International Federation for Engineering Education Societies (IFEES), Executive Secretary of the Global Engineering Deans Council (GEDC), and Resident Scholar in Global Engineering at Marquette University. Former Director of International Programs and Strategy for the American Society for Engineering Education (ASEE) and co-founder of the Indo-US Collaborative for Engineering Education (IUCCE). Prior to 2006, Hans J. Hoyer was CEO of World Links, a spin-off of the World Bank. In this capacity, he worked globally on issues related to secondary education, teachers’ education, and on-line collaborative learning focusing on science and social studies among high school students across the globe.

Dr. Hoyer has been a Visiting Scholar at the Center for International Studies at MIT, a Fellow at Harvard’s School of Education and Visitor at the Kennedy School of Government. He was dean of the graduate program at the School for International Training, World Learning and Executive Director of the Executive Training Program for global governmental and NGO leaders in Brattleboro, Vermont. Prior to this, he taught cultural anthropology and Latin American Studies at George Mason University in Fairfax, VA. and Montgomery College, Takoma Park, MD. He earned his Ph.D. at American University in Washington, D.C. and was a post-doctoral fellow at the Organization of American States, carrying out research in the Rio de la Plata region of South America.
Dr. Hoyer has led several international development programs, including CARE, Plan International, and Heifer International. In these latter roles, he held executive leadership positions such as Senior Vice-President/Chief Operating Officer, and Regional Executive and was responsible, among others, for raising large financial resources from a multitude of donors including government agencies, the World Bank, IAB, several foundations, corporations and private donors. He also represented the largest U.S. farming membership association as a spokesperson at the European Union and European Parliament in Brussels and also represented them in Mexico and Central America. He has served on the board of directors with Nelson Mandela of El Taller, a global civil society network headquartered in Tunisia as well as on several social-action community groups. He was also on the staff of the Inter American Foundation, created by the U.S. Congress to support socio-economic development throughout Latin America/Caribbean. He was on the advisory board of Hewlett Packard’s e-Inclusion Global Advisory Board related to their work in South Africa and Founding member of the Board of the Engineering for the Americas (EftA) initiative under the umbrella of the OAS. He serves on the Editorial Committee of the Argentinean Journal of Engineering Education, Science and Technology. He has written and published on a broad range of subjects related to international development, politics, health, education, and engineering education. Born in Berlin, Germany, he immigrated to the US as a teenager. His wife is Canadian and he has four children who were born in the U.S., Brazil, Mexico and Belgium.

Dr. Hongyi Sun holds a Bachelor degree in Computer Science from Harbin University of Science and Technology, a Master’s degree in Management Engineering from the Harbin Institute of Technology (HIT), both in China, and a Ph.D. in Technology Management from Aalborg University in Denmark. Dr. SUN received a Certificate of Pedagogy in Higher Education from Bergen University in Norway in 1997. He has taught at the Harbin Institute of Technology in China (1986-1990) and the University of Stavanger in Norway (1994-1998). Currently Dr. SUN is an Associate Professor in the Department of Systems Engineering and Engineering Management, City University of Hong Kong, where he also serves as programme leader and founding deputy programme leader of the Engineering Doctorate programme.

Bio: Dr. SUN Hongyi holds a Bachelor degree in Computer Science from Harbin University of Science and Technology, a Master’s degree in Management Engineering from the Harbin Institute of Technology (HIT), both in China, and a Ph.D. in Technology Management from Aalborg University in Denmark. Dr. SUN received a Certificate of Pedagogy in Higher Education from Bergen University in Norway in 1997. He has taught at the Harbin Institute of Technology in China (1986-1990) and the University of Stavanger in Norway (1994-1998). Currently Dr. SUN is an Associate Professor in the Department of Systems Engineering and Engineering Management, City University of Hong Kong, where he also serves as programme leader and founding deputy programme leader of the Engineering Doctorate programme.
Dr. Amy Z. Zeng
Professor, Director of Industrial Engineering
Assistant Dean of School of Business
Worcester Polytechnic Institute
Worcester, Massachusetts, USA

Cultivating Global Competency and Entrepreneurial Mindset for Engineering Students

Abstract: Global competency and entrepreneurial mindset are increasingly valued in corporate world and are becoming one of the critical skillsets engineering students need to equip with upon graduation. How to design the engineering curriculum to help students cultivate these capabilities when they are on campus are pressing issues and discussed extensively in various media. This talk presents the practices and experiences of Worcester Polytechnic Institute with focus on industrial engineering program. The presentation consists of four parts. The first part provides an overview of WPI’s project-based learning model. The second part describes how the China Hub, WPI’s hallmark of global engagement initiative, facilitates WPI students to establish their global competency with China expertise. The third part introduces the Industrial Engineering Program at WPI with focus on its uniqueness. In the last part, how to cultivate IE students’ entrepreneurial mindset through supply chain and logistics courses is explored; specifically, a real-world project in a global logistics class that enables both undergraduate and graduate students to experience the entire design cycle of supply chain and logistics channels for bringing new products or technologies to potential global markets is described. Then possible ways for integrating the core elements of supply chain management and entrepreneurship are discussed.

Bio: Dr. Amy Z. Zeng is currently Full Professor of Operations Management, Assistant Dean and Director of Industrial Engineering Program at the School of Business of Worcester Polytechnic Institute in (WPI) Worcester, Massachusetts, USA. She is also the Co-Director of WPI’s China Senior Project Center and the co-founder and inaugural director of the China Hub at WPI. She holds a Ph.D. in Business Administration with concentration area in operations management from Pennsylvania State University, an M.S. in Industrial Engineering from University of Washington, and a B.S. in Industrial Management Engineering from Beijing University of Aeronautics and Astronautics. Her research efforts center on supply chain and logistics management and cover four aspects: theory, practice, pedagogy and teaching cases, and her research interests include supply disruption risk management, sustainable/green supply chain design, and global supply chain process evaluation in various industry sectors. Dr. Zeng has published over ninety articles in academic journals, books and conference proceedings, and delivered nearly a hundred speeches at a wide range of occasions, six of which are keynote speeches at international conferences. Dr. Zeng is a recipient of numerous awards and recognitions for her teaching, research and service. In addition to teaching and research, Dr. Zeng has consulted companies with respect to global supply chain and logistics management, lean principles implementation, quality control, inventory and materials management, and process analysis and capacity planning. She has also provided training workshops for executives and senior managers in the areas of lean enterprise architecting, supply chain management, and leadership and management skills.

Dr. Ana Luisa Ferreira Andrade Ramos
Assistant Professor and member of the Executive Board of the Department of Economics, Management and Industrial Engineering of University of Aveiro, Portugal

Research member of GOVCOPP – Research Unit in Governance, Competitiveness and Public Policies, University of Aveiro, Portugal

Teaching Modern Industrial Engineers: Bridging the Gap between Academia and Industry through Experiential Learning

Summary: The modern industrial engineers need to be trained to solve engineering problems holistically and enforcing the dimensions of flexibility, productivity and quality. The Industrial Engineering undergraduate and graduate programmes need to provide these skills and competencies to those professionals offering specialized knowledge of concepts and methods to resolve complex technical problems, establishing synergies between the operations, the management, the technology, and the information systems, and the capacity to evaluate the economic, environmental, and societal consequences of the proposed actions. Teaching these subjects to future industrial engineering professionals is a complex task that relies on the growing utilization of modelling techniques and experiential/active learning approaches. The modern generation (Y-gen) is more visual, interactive and focused on problem-solving than the former generations so, the undergraduate and graduate programmes in engineering need to adopt new teaching/learning paradigms based on active, experiential, and problem-based approaches. This talk will focus the case of the Simulation courses of the Management and Industrial Engineering programmes at University of Aveiro (Portugal) and will illustrate how the students learn industrial engineering concepts and tools through an experiential and problem-based approach. The active exploitation of engineering tools and its utilization to study real-world problems is certainly a successful approach to promote visual, interactive and problem-based learning strategies, and to bridge the gap between academia and industry by guiding industrial engineering students through the resolution of real industry (and service) problems.

BIO: Ana Luisa Ferreira Andrade Ramos received the M.Sc. degree in Computers Engineering from the University of Coimbra, Portugal, in 2002 and the Ph.D. degree in Industrial Management from the University of Aveiro, Portugal, in 2011. She is currently an Assistant Professor of Management and...
Industrial Engineering (MIE) with the Department of Economics, Management and Industrial Engineering (DEGEI) of University of Aveiro, where she teaches since 1997 (Simulation, Operations Management and Logistis). Dr. Ramos is member of the Executive Board of the Department and member of the Department Council. She was vice-director of the MIE undergraduate and graduate programs and coordinator of the Socrates/Erasmus program for the MIE area. Dr. Ramos is an integrated member of the Research Unit on Governance, Competitiveness and Public Policies (GOVCCOP) of the University of Aveiro being the research work focused on systems engineering and modeling & simulation of complex systems, with applications in the industrial and transportation sectors. She has participated in several scientific research projects and industry-based projects. She co-authored book chapters and numerous scientific papers published in peer reviewed international journals and international conferences proceedings. Dr. Ramos received, in 2009, the international award “INCOSE Foundation/Stevens Institute Doctoral Awards for Promising Research in Systems Engineering and Integration”. Dr. Ramos served as reviewer for many scientific journals such as Computers and Industrial Engineering, IEEE Transactions, and Research in Engineering Design. She is a member of the IEEE Society, the IEEE Systems, Man, and Cybernetics Society, the International Association of Computer Science and Information Technology, the Systems Engineering & Architecting Network for Research (SEANET), and the Portuguese Association for the Development of Operational Research (APDIO).

Wednesday (March 4, 2015)

Session V: ENGINEERING CURRICULUM

Session Chair: Dr. Gulnara Abitova, Eurasian National University, Kazakhstan

09:45 – 10:15 (Wednesday)

Dr. Gulnara Abitova
Professor, Department of System Analyses and Control
Eurasian National University, Astana City, Republic of Kazakhstan

Dr. Abitova holds Master’s degree in Cybernetics of Technological Processes from Moscow State University of Steel and Alloys at Moscow (Russian Federation), Ph.D degree in Automation of Metallurgy Production from National Academic Research Institute of Metallurgy and Enrichment of the Ministry of Education and Science at Almaty (Kazakhstan) and she graduated Postdoctoral Program in Automation and Control from Eurasian National University at Astana (Kazakhstan). She has been an invited to the Computer and Electrical Engineering Department in State University of New York (SUNY) at Binghamton (NY, USA) for studying her research work. Dr. Abitova is Professor and Researcher in the Department of System Analyses and Control at the L.N. Gumilyov Eurasian National University (ENU, Kazakhstan). Prior to this current position, she was General Director of the Kazakh Information Technology Research Institute (KITRI, Kazakhstan); Deputy Director of the National Accreditation Center, Deputy Director of the Science Committee (Ministry of Education and Science, Kazakhstan); Department Director of the Postgraduate Studies (Eastern-Kazakhstan State University, Kazakhstan); Research Engineer in the Laboratory of Physical and Chemical Research (East-Kazakhstan Scientific Research Institute for Non-Ferrous Metals, Kazakhstan) and Researcher in the L.N. Gumilyov Eurasian National University (ENU, Kazakhstan). Dr. Abitova was awarded the International Grant from the President of Republic of Kazakhstan – Scholarship for the study abroad at the USA (2011-2012) and the prestigious Diploma from the Administration of President of the Republic of Kazakhstan (OCSE, December 2010), as well as Awards and Diplomas from Minister of Education and Science of Kazakhstan for the Professionalism (2005-2009).

Dr. Abitova was also the National Coordinator of UNESCO’s Education for Sustainable Development, Ministry of Education and Science of Kazakhstan (UNESCO-Kazakhstan, 2008-2009), where she worked on the Project of National Report of the Kazakhstan for UNESCO (within the UN Decade of Education for Sustainable Development). The same time she was a member of many Working Groups and Temporary Committee of the Ministry of Education and Science (Kazakhstan, 2003-2012). She has been an invited speaker at the International conferences (IEEE, SPIE, CSDM, (ICUMT) and published more than 30 research articles in the reputed international proceedings on mathematical and engineering sciences at the USA, Canada, France, Turkey, Malaysia, Bulgaria, and Hungary. Her papers became a basis for a chapter of a book published by Springer. She served as the Track Chair in the IEOM 2012 conference at Istanbul (Turkey, 2012). Dr. Abitova's current research interest includes education and science; management and administration in education, science and ITC; substantial development and ecology; human research; automation and control; control systems and engineering; cybernetics; mathematical modeling; sensors and control devices; designing automation lines; robust control and robust system; cloud technology; development of ITC; cyber security; open source and intelligent system; non-destructive testing technology.

10:15 – 10:45 (Wednesday)

Dr. Kailash Bafna
Professor
Department of Industrial & Entrepreneurial Engineering and Engineering Management
Western Michigan University
Kalamazoo, Michigan. U.S.A.

Educat1ng 21st Century Engineers

Summary of Presentation: We need to change our methods of delivering education significantly because of the exponential rate of development in technology for delivering education and also to satisfy the needs of the generation of students who are now in college—better known as the Millennials. These students have some unique characteristics which make it difficult for them to derive maximum benefits from the traditional classroom lectures. As such, we now stand at the gateway of seeing sweeping changes in how the engineering students are educated in the 21st century. During the past ten years, I have gradually implemented the use of increasing levels of technology in teaching my classes. This has primarily been in two forms: using specific applications relevant to the teaching process and to the course, and using the learning management systems (elearning) available at the University. As a result, today I can offer my courses in an online format, in a flipped classroom format, or as a hybrid class. My presentation will discuss my experiences in the use of technology and provide guidelines for educating students more effectively in the 21st century.
Bio: Dr. Kailash Bafna is a professor in Industrial and Entrepreneurial Engineering and Engineering Management at Western Michigan University. In the past, he has also served as an Assistant Dean in the College of Engineering and Applied Sciences and as a Chair of the Department of Industrial Engineering. He received his B.Sc. (Hons.) in Mechanical Engineering from Banaras Hindu University in India (now IIT-BHU), M.S. in Production Management from the University of Mississippi, and a Ph.D. in Industrial Engineering from Purdue University. He has also taught at the Georgia Institute of Technology and the University of Wisconsin. He is a Fellow of the Institute of Industrial Engineers and is a Registered Professional Engineer in the State of Wisconsin. Over the past ten years, Dr. Bafna has focused on improving undergraduate education through the gradual implementation of technology into his classes. As a result, today he can offer his courses in an online format, in a flipped classroom format, or as a hybrid class. One of his courses is even offered as a paperless class. Through all of these changes, he has been successful in improving the overall performance of the students in his class. In the past few years, he has made several presentations at national and international conferences on his developments. His innovative work was recently recognized by the Institute of Industrial Engineers (IIE) and he received two awards from them for excellence and innovations in teaching. Dr. Bafna has served several professional societies. He served IIE for 20 years in various capacities at the national, regional, local, and the university levels. He has also served the National Council of Examiners for Engineering and Surveying on their committee to prepare questions in Engineering Economy and the Michigan Society of Professional engineers on their Educational Credentials Review Committee, and has been a member of the College-Industry Council on Material Handling Education.

Dr. Abdurazzag Ali Aburas
Faculty of Information and Technology
Tripoli University, Tripoli, Libya

Challenges in Engineering Curriculum

Dr. Abdurazzag Ali Aburas received his Bachelor’s degree in Computer Sciences from Tripoli University, Libya in 1987. He obtained his Master degree in Computer & Information Technology and Ph.D. in Digital Image Processing from Dundee University and DeMontFort University, UK in 1993 and 1997 respectively. He worked in Jordan and UAE universities for five years and Electrical and Computer Engineering university, Kulliyah of Engineering, International Islamic University Malaysia. Currently, he is working as Assistant Professor at the International University of Sarajevo. He has more than 50 publications in different international conferences and several papers in international journals. He has got two research patents in Image processing filed. Recently, he gives consultation for IT Company as senior software developer. His areas of research interest are Curriculum development, Digital Signal / image / video processing, Coding and Compression, Wavelets, Fractal and Image / Voice Pattern Recognition, Human Computer Interaction, E and M Learning, wireless Communications, Algorithms, Web-applications. He is a member in IEEE, HCI-UK, ARISE and IMA Societies. He was a Member Board of Studies of Engineering Curriculum development (Review and Improvement). Dept. of Electrical and Computer Engineering, Faculty of Engineering, International Islamic University Malaysia. He introduced two new course curriculums for HCI (2001) and Programming for Engineering (2008). He is Coordinator of Cloud Computing and Mobile Research Group – CCMRG at IUS present time and Coordinator of Software Engineering Research Group – SERG (2006-2009), IIUM. He has published new book based Engineering Education.

Session VI: ASSESSMENT and ACCREDITATION

Session Chair: Dr. Pamela McCauley Bush, University of Central Florida, USA

Dr. Pamela McCauley Bush, C.P.E.
Professor, Department of Industrial Engineering and Management Systems
Director, Human Factors in Disaster Management Research Team
University of Central Florida
Orlando, FL 32816, USA

Bio: Dr. Pamela McCauley Bush is a nationally recognized speaker, entrepreneur, author and Full Professor in the Department of Industrial Engineering and Management Systems at the University of Central Florida where she leads the Human Factors in Disaster Management Research Team. She previously held the position of Martin Luther King, Jr. Visiting Associate Professor of Aeronautics and Astronautics at the Massachusetts Institute of Technology (MIT). Through incredible determination and vision, Dr. Bush overcame immense life hurdles to be hailed today as an award-winning innovative leader, respected engineering expert and a globally renowned motivational speaker in the Women’s Leadership and STEM Education communities. She is the author of over 80 technical papers, book chapters and conference proceedings. Dr. Bush has the distinction of being a 2012 U.S. Fulbright Scholar Specialist Program Awardee for her US-New Zealand Human Engineering and Mobile Technology in High Consequence Emergency Management Research Program. Dr. Bush is also a highly sought Certified Professional Ergonomist (C.P.E.) and expert witness, due to her extensive expertise and experience in biomechanics, human factors and ergonomic design.

She received the Distinguished Alumni Award from the University of Oklahoma. In 2007, she received the Engineer of the Year Award from the Florida Engineering Society and in 2006, was recognized by the Society of Women Engineers as Engineering Educator of the year. She also received the Woman of Distinction in Technology Award from the Central Florida Girl Scout Council in 2006. She has been recognized as one of the Ten Small Business Women of the Year in Central Florida; and the Millennium Woman of the Year 2001 by the Millennium Woman Foundation, Los Angeles California. Other honors include the Saturn/Glamour Magazine “Women Making a Difference Award” 2000 and the Outstanding Woman of Color in Technology Award for Educational Leadership in 1999. She was elected member of the Board of Directors for the National Center for Simulation. In 2001, she was appointed to serve on the Florida Research Consortium by Governor Jeb Bush. Additionally, she served on the National Board of Directors for the Women in Engineering Program Advocates Network (WEPAN) from 1998-2000. She presently maintains board membership in a number of agencies including the Beta Parent Program, the University of Oklahoma Industrial Engineering Advisory Board and the University of Oklahoma, College of Engineering Minority Engineering Advisory Board. Dr. Bush also serves as the Chief Technology Officer (CTO) of Bush Enterprises. She held the position of CEO of Tech Solutions, Inc., a former division of Bush Enterprises. A native of Oklahoma, Dr. Bush obtained her Bachelors, Masters, and Doctor of Philosophy degrees in Industrial
Dr. S. C. Naik  
Professor  
Bhubaneswar-751019, Odisha State, India

**Engineering Education in India, Its Assessment & Accreditation**

Professor S C Naik obtained his BTech, MS & PhD degrees all in Chemical Engineering from the Universities of Madras, Ottawa and UK (Swansea, Wales) respectively. He taught at the National Institute of Technology, Odisha State, India where Dr. Naik was Head of the Department and Dean. He guided many Research Fellows, some medium scale Industries and helped in establishment of an Engineering College. Dr. Naik authored/co-authored some books, published many papers in International and National Journals and presented papers in several countries. He was a Keynote Speaker at the Technical Events in Sri Lanka, South Korea, some Gulf countries, Naples, Tokyo and San Francisco in 2006. Dr. Naik was a Consultant to a prestigious Journal. Dr. Naik was a President of The Indian Institution of Engineers, one of the largest professional bodies in the world, a Vice President of The Federation of Engineering Institutions of South & Central Asia and a Council Member of The Indian Institute of Chemical Engineers. He is a well-known writer in his own mother tongue, Odiya and has published several social novels, a book with one hundred poems and several articles for which he has been felicitated by his State Literature Academy and his name has found place in Central Literature Academy. Dr. Naik is associated with many Committees at the State and Central levels. Professor Naik has a deep involvement in social service for which he has been even appreciated by a world-based organization. For his achievements, he has been awarded and appreciated by Regional, State, Central and Global organizations.

Dr. Ezendu Ariwa  
Professor, Dept. of Computer Science and Technology  
University of Bedfordshire, UK

**Engineering Education in Great Britain: Engineering Education for Sustainability**

Ezendu holds the position of Professor at University of Bedfordshire, United Kingdom, Faculty of Computer Science & Technology with specialty in Practice in Computing. He is also a Visiting Professor at Gulf University, Bahrain, Visiting Professor, University of Lagos, Nigeria and Visiting Professor, Kano State Polytechnics, Nigeria as well as Visiting Affiliate of the Green IT Observatory, RMIT University, Australia and Visiting Affiliate of ICT University, USA. He also holds the position of Director – Technical and Non-Executive Director and Research Professor for Enterprise Projects at Sun Bio IT Solutions Pvt. Ltd, India. He is also the Chair for the IEEE Consumer Electronics Chapter, United Kingdom & Republic of Ireland (UKRI) and Chair for the IEEE Broadcast Technology Chapter, UKRI. He is a Senior Member of Institute of Electrical & Electronic Engineers (SMIEEE); Chartered FELLOW of the British Computer Society (CITP, FBCS), Fellow of the Institute of Information Technology Training (FiITT), Fellow of the Higher Education Academy (FHEA) and Fellow of the Royal Society of Arts (FRSA). He is also a member of the Elite Group of The British Computer Society (BCS), member of British Institute of Facilities Management and Fellow of Global Strategic Management, Inc., Michigan, USA and Member of the UK Council for Health Informatics. He is the Coordinator of the Digital Enterprise Research Group (DERG), African Research in Business Group (ARBG) and working with the team to achieve African Business and Enterprise Research Observatory (ABERO) at the London Metropolitan Business School. The ABERO achieved good collaboration with multicultural SMEs in the United Kingdom, with respect to mentoring and working on joint professional development enterprise programmes. He has experience of doctoral research supervision as well as doctoral external examiner for various Universities both in the UK and internationally. He has a good research profile and the Founding Editor-in-Chief of the International Journal of Green Computing (IJGC), Editor-in-Chief of the International Journal of Computing and Digital Systems (IJCDS), Journal of E-Technology, and the Associate Editor of the International Journal of E-Politics and the Associate Editor of International Journal of Distributed Systems and Technologies (IJDIST). He is a member of Policy Co-ordination Committee of the International Research Foundation for Development (A Corporation of NGO in special Consultative status with the Economic and Social Council of the United Nations).

**Session VII: ENGINEERING EDUCATION**

**Session Chair:** Dr. Alaa K. Ashmawy, American University in Dubai, UAE

Dr. Alaa K. Ashmawy  
Dean of the School of Engineering  
Professor of Civil Engineering  
American University in Dubai

**Bio:** Dr. Alaa K. Ashmawy is Professor of Civil Engineering and Dean of the School of Engineering at the American University in Dubai (AUD). Prior to joining AUD, he had held teaching and research appointments at the University of South Florida in Tampa, Florida, and the Georgia Institute of Technology in Atlanta, Georgia. His technical expertise is in geotechnical engineering, with interests in foundations and earth structures, environmental geotechnics, and earthquake engineering. Dr. Ashmawy's research has been funded by the US National Science Foundation, the US Department of State, and the Florida Department of Transportation. His professional experience also includes consulting on several engineering projects in the USA and the UAE, and a visiting professorship at the Universidad de las Americas in Puebla, Mexico. He is a licensed Professional Engineer (PE) in the State of Florida, USA. Dr. Ashmawy earned his Master's and Ph.D. degrees from Purdue University in West Lafayette, Indiana, USA, and his Bachelor's degree with Distinction from Alexandria University in Egypt. He has been a member of the Global Engineering Deans Council (GEDC).
Executive Committee since 2009, and was elected in 2011 as GEDC Secretary/Treasurer. He is a Program Evaluator (PEV) for ABET’s Engineering Accreditation Commission, and an active member on numerous regional and international committees on engineering accreditation, curriculum, and professional licensure. He is also a member of the American Society of Civil Engineers, the American Society for Engineering Education, the Deep Foundations Institute, and Sigma Xi – the Scientific Research Society. He is the recipient of the 2004 Jerome Krivanek Distinguished Teacher Award at the University of South Florida, and the ASCE Zone II Faculty Advisor Certificate of Commendation. He has authored three book chapters, and more than 50 technical papers in refereed journals and conferences.

14:30 – 15:00 (Wednesday)

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

Dr. Abdur Rahim is a Professor at the Faculty of Business Administration, University of New Brunswick (UNB), Fredericton, Canada. He joined UNB in 1983 and is a member of the Quantitative Methods area. He received his B.Sc. (Hons.), M.Sc. in Statistics from the University of Dhaka, D.S. in Operations Research from the University of Rome, M.Sc. in Systems Theory from the University of Ottawa, and Ph.D. in Industrial Engineering from the University of Windsor. He teaches Management Science, Operations Management and TQM in the BBA and MBA programs. Dr. Rahim is a recognized world expert in Quality Control and Quality Management. He has taught a wide range of courses in Universities in Canada, Bangladesh, Malaysia, and Saudi Arabia. He has served as an Associate Editor of the International Journal of Systems Science, Quality Engineering, and Engineering Optimization. He is a member of the Advisory or Editorial boards for Economic Quality Control, the Journal of Quality in Maintenance Engineering, the Journal of Quality Engineering and Technology, and the International Journal of Production Research. Dr. Rahim received the UNB Merit Award in 1992, 1999, 2000, and 2009 for his excellence performance in research, service, and teaching.

15:00 – 15:30 (Wednesday)

Dr. Ho Thanh Phong
Associate Professor
Rector
International University - VNUHCM
Ho Chi Minh City, Vietnam

Biography
Dr. Ho Thanh Phong is the Rector of International University, Vietnam National University – HCMC, Ho Chi Minh City, Vietnam. He received Doctor of Engineering degree in Industrial Systems Engineering Program, School of Advanced Technologies (SAT), Asian Institute of Technology (AIT) in 1997 and be promoted the title Associate Professor by HCM University of Technology in 2001. Main academic interests are Multiple criteria decision making (MCDM) in industry, Stochastic Processes in Industry, Project Management, Multiple criteria optimization techniques, Simulation modeling in manufacturing systems; Business Simulation for Re-engineering, Optimization-simulation integration, Decision Support System and Expert system for Industrial application and Management application, CAD/CAM and CIM, Quantitative Method for Management. Be the author and co-author of 11 publications of economics and technology.

Session VIII: PANEL SESSION
Panel Chair: Dr. Abu Masud, Wichita State University, Kansas, USA
15:45 – 17:15 (Wednesday)

Panelists

Dr. Funso Falade
Professor of Civil Engineering
University of Lagos, Nigeria and
President, African Engineering Education Association

Dr. Hans-Juergen Hoyer
Secretary General of the International Federation for Engineering Education Societies (IFEEES)
Executive Secretary of the Global Engineering Deans Council (GEDC)
Bio: Dr. Abu Masud is interim dean of the graduate school and professor of industrial and manufacturing engineering at Wichita State University. He has been named the Boeing Global Engineering Professor at Wichita State University. In this new post, Dr. Masud is expected to advance the College of Engineering’s strategic alliances for global enrichment and experiential learning of students as well as international research collaborations and partnerships. He received Duane and Velma Wallace Outstanding Educator Award from WSU College of Engineering. Previously he was held various positions at Wichita State including associate dean, graduate school (2008-2013), coordinator, college ABET affairs (2006-2008), associate dean, college of engineering (2004-2005), chair, industrial and manufacturing engineering department (1994-2004) and graduate coordinator of IME (1991-94, 1996-98, 2001-2004). Dr. Masud has engaged with various companies and governmental research centers including NASA Langley Research Center, VA, NASA/ASEE Summer Faculty Fellow (1991 and 1992), Boeing, Consulting Analyst, and Kuwait Institute for Scientific Research. He is member of Accreditation Review Council (2011-2014). Dr. Masud published book, book chapters, and numerous journal and conference papers. He is registered Professional Engineer at Kansas State. Dr. Masud is an IE fellow. He received Ph.D. and M.S. in Industrial Engineering from Kansas State University, and B.S. in Mechanical Engineering from Bangladesh University of Engineering & Technology.

Dr. Ibrahim Mohammed Al-Harkan
Associate Professor of Industrial Engineering
Director of Applied Engineering Management Program
General Director of External Joint Supervision Program
Dean of Graduate Studies
King Saud University
Riyadh, Saudi Arabia

Dr. Abu Masud, P.E.
Interim Dean of Graduate School
Boeing Global Engineering Professor
Professor of Industrial and Manufacturing Engineering
Wichita State University, Kansas, USA

Bio: Dr. Abu Masud is interim dean of the graduate school and professor of industrial and manufacturing engineering at Wichita State University. He has been named the Boeing Global Engineering Professor at Wichita State University. In this new post, Dr. Masud is expected to advance the College of Engineering’s strategic alliances for global enrichment and experiential learning of students as well as international research collaborations and partnerships. He received Duane and Velma Wallace Outstanding Educator Award from WSU College of Engineering. Previously he was held various positions at Wichita State including associate dean, graduate school (2008-2013), coordinator, college ABET affairs (2006-2008), associate dean, college of engineering (2004-2005), chair, industrial and manufacturing engineering department (1994-2004) and graduate coordinator of IME (1991-94, 1996-98, 2001-2004). Dr. Masud has engaged with various companies and governmental research centers including NASA Langley Research Center, VA, NASA/ASEE Summer Faculty Fellow (1991 and 1992), Boeing, Consulting Analyst, and Kuwait Institute for Scientific Research. He is member of Accreditation Review Council (2011-2014). Dr. Masud published book, book chapters, and numerous journal and conference papers. He is registered Professional Engineer at Kansas State. Dr. Masud is an IE fellow. He received Ph.D. and M.S. in Industrial Engineering from Kansas State University, and B.S. in Mechanical Engineering from Bangladesh University of Engineering & Technology.

Abstract: Inclusive Engineering Education is constantly changing and must adapt to the demands of a global, equitable and inclusive world. In Central America, people with disabilities are still a segment of the population that suffers from discrimination in social, occupational and educational. Currently, less of the 1% of population access graduate education and only 50% find professional jobs. That's because governments have promoted laws and regulations seeking greater access to education for people with disabilities and, in the field of engineering in the last 10 years, they have been implementing strategies to look for talent and change educational processes with an innovative approach that neglects the paradigm of standardization (normalization) and approaches to finding styles of student learning and development of skills for design and creative thinking. This lecture explains the progress in cooperation and coordination in the countries of the region and the strategy application based on three fundamental elements: teacher training, cooperation of critical actors in the educational process and interaction of students with teachers and support staff in order to go beyond the educational needs towards building values.

Bio: Eldon Caldwell, is full professor/ Cathedraticus of the University of Costa Rica, Central America; Doctor (Ph.D.) in Industrial Engineering major in Lean Operations Engineering. He developed new heuristic sequencing algorithms in order to reduce cycle times and received Suma Cum Laude in his doctoral dissertation and Academic Crown Excellence Award in Autonomous University of Central America/ University of Nevada, USA. Currently, he is doctoral researcher at the (Dr.Sc.) Computing Science Program at the University of Alicante, Spain and doctoral researcher at the Dr. Ed. Program at University of Costa Rica, receiving the Academic Excellence Award 2013. Dr. Caldwell “Lean Systems Certified Specialist”, MAPV-University of Nevada, USA, ASQ-Six Sigma Black Belt Certified Trainer, and Spanish publications technical reviewer of Gary Conner, 2002 Shingo Prized. Also, Dr. Caldwell’s Lead Auditor ISO 9001:2008 and Belbin Team Work Certified-UK. Dr. Caldwell earn his B.Sc. and Master degree in Industrial Engineering at University of Costa Rica (Summa Cum Laude) and he earn a Master degree in Service Marketing, as well in Financial Analysis at Interamerican University of Puerto Rico (Costa Rica); M.Sc.Health Management Systems at UNED. Costa Rica and a M.Sc. Operations Management at ITESM, México. He is author of many scientific articles and two books: “Marketing of Social Products and Services”, UCR Pub. and “Lean Manufacturing: Fundamentals and techniques for cycle time reduction”, Kaikaku Institute Press, USA.
Dr. Caldwell served as Operations Manager at MASECA, CA; Lean Manufacturing Project Manager at Eaton Corp. Costa Rica, General Manager at Quiros & Cía-Bandag Inc. and General Manager at Lean Systems Intl., USA. He has 25 years of experience as advisor and consultant in Operations Management, Lean Manufacturing and Lean Logistics at Interamerican Bank for Development, WHO, UN, World Wide Bank, Coca-Cola, Ministry of Health, Costa Rica, Honduras, Panamá, Costa Rican Institute for Electricity, RTC- Perú, Young Electrical Signs, Nevada, USA, Air Care Inc., Reno, Nevada, Plan International-Honduras, and many others. Currently, Dr. Caldwell is Director of Industrial Engineering Department, Engineering School at University of Costa Rica.

10:40 – 11:05 (Thursday)  

Dr. C. B. Gupta  
Professor, Department of Mathematics  
Birla Institute of Technology & Science (BITS)  
Pilani, India

A recipient of Shiksha Rattan Puraskar 2011, Best Citizens of India award 2011, Glory of India award 2013, listed in Marquis who is who in Science and Technology in the world 2010 and 2013 and listed in top 100 scientists of world in 2012. Dr. C. B. Gupta who is presently working as a Professor in the Department of Mathematics, Birla Institute of Technology and Science, Pilani (India) obtained his Master’s degree in Mathematical Statistics and Ph. D. in Operations Research from Kurukshetra University, Kurukshetra. His field of specialization is Applied Statistics, Optimization and Operations Research. A number of students have submitted their thesis/dissertation on these topics under his supervision. He has published a large number of research papers on these topics in peer reviewed national and international journals of repute. He has authored/co-authored 12 books on the topics Probability and Statistics, quantitative Methods, Optimization in Operations Research, Advance Discrete Mathematics, Engineering Mathematics I, II, III, Advance Mathematics etc. He is also on the editorial board of a number of national and International journals and also reviewer of many national and international journals. Dr. Gupta is a member on various academic and management committees of many Institutes/Universities. He has participated in more than 30 national and International conferences in which he has delivered invited talks and chaired technical sessions. He has been member of Rajasthan board of school education and also member of various committees of RPSC Ajmer, UPSC, New Delhi and AICTE, New Delhi etc.

11:05 – 11:30 (Thursday)  

Prof. Dr. Anil Brahmanandan  
Principal, Government College of Engineering  
Barton Hill, Trivandrum, Kerala, India  
and  
Fellow of Indian Institution of Industrial Engineers

Industrial Engineering Education in India

Dr. Anil is the Principal of Govt. Engineering College (Barton Hill, Trivandrum, Kerala) in India. He is a fellow of Indian Institution of Industrial Engineers and Aeronautical Society of India. Dr. Anil was awarded the VKM John National Award for Best Engineering College Teacher in 2009 as well as CET-ISTE Best Researcher Award 2009. He was Dean of Faculty of Engineering & Technology, University of Kerala, 2011 – 2013.

11:30 – 12:00 (Thursday)  

Dr. Abdel Magid Hamouda  
Professor and Chairman  
Mechanical and Industrial Engineering Department  
Qatar University, Qatar

“Innovation and Entrepreneurship in Higher Education: Status; Challenges and Future Trends”

Bio: Dr. Hamouda joined Qatar University as Professor and Chairman of Mechanical and Industrial Engineering Department in 2006. Prior to this appointment, Dr. Hamouda was holding joint appointments in University Putra Malaysia, at the Faculty of Engineering as well as the Institute of Advanced Technology where he was the founding program manager in computational Science and Engineering. He was also a research manager at the Road Safety Research Centre (RSRC), University Putra Malaysia. Dr. Hamouda is corresponding member for the American Academy of Mechanics (AAM), member of the American Society of Mechanical Engineering (ASME), and member of the Institute of Electrical and Electronic Engineers (IEEE). He is also a senior member of Institute of Industrial Engineering (IIE), USA, Member of the Institute of Mechanical Engineers (IMechE), UK; and Member of the Institute of Highway Transportation, UK.

Dr. Hamouda has supervised/overseeing more than 15 Ph.D. and more than 50 Master degree students (By Research Thesis). Furthermore, he has published over 300 papers of which 120 Journal Publications. He has often been invited as keynote and invited speaker for various conferences, seminars and workshops. He has several US and Malaysian patents, and has edited several conference proceedings. He is editor-in-chief of international journal of virtual technology and multimedia, Deputy Editor-in-Chief of Journal Achievements in Materials and Manufacturing Engineering and Editor of Engineering and Applied Sciences Journal. He set in the editorial board of many international journals. His research focuses on advanced design tools, development
of novel materials and structures with enhanced performance. Key focus areas of his research are characterization of advanced materials, developing new design concepts, multifunctional and smart structures, design evaluation, crashworthiness, robotics, Lean management as well as Artificial intelligence and adaptive control.

He and his co-workers have received a number of prestigious awards; Gold Medal at the British Invention Show Alexandra Palace, UK, in 2004 and 2006, Silver Medal and Bronze at the 32nd International Exhibitions on Inventions, New Techniques and Products, Geneva, Switzerland, and another Silver Medal at the 63rd IENA, Nuremberg, Germany. In December 2007, he won the 2nd place at the Arab Business Plan competition in Amman, Jordan. Dr. Hamouda was selected by the Organization of Islamic Countries (OIC) as one of the 200 Top scientists within the OIC courtiers. He Chaired and organized a good number (about 50) of symposium and international conferences in the areas of composite materials and computational mechanics in different parts of the world namely, Ireland, Japan, USA and Malaysia. He is assessor/ examiner to academic programs and faculty academic promotion to many universities. Dr. Hamouda is approached regularly by the members of the media for clarification of engineering issues concerning the public safety and invention; to name few Reader’s Digest magazine and Women’s Weekly manganese.

12:00 – 12:30 (Thursday)

Dr. Ibrahim Mohammed Al-Harkan
Associate Professor of Industrial Engineering
Director of Applied Engineering Management Program
General Director of External Joint Supervision Program
Dean of Graduate Studies
King Saud University
Riyadh, Saudi Arabia

Master of Science in Engineering Management at King Saud University – A Global Engineering Education [ID]

Ibrahim Mohammed Alharkan, is an Associate Professor of Industrial Engineering, Director of Applied Engineering Management Program, General Director of External Joint Supervision Program, and Dean of Graduate Studies at King Saud University, Saudi Arabia. He is also a Missouri S&T Adjunct Faculty under the collaborative MSEM program between KSU and Missouri S&T. He holds a B.S. in Industrial Engineering from King Saud University, M.S. and PhD. in Industrial Engineering from The University of Oklahoma, USA. His research interests include Production Planning and Control, Production Sequencing and Scheduling and Simulation Modeling and Analysis, Total Quality Management, Maintenance Planning and Scheduling, and Project Management. He is a member of IIE, INFORMS, NSPE, and Alpha Pi Mu, also, the Chairman of Managing Board of Saudi Chapter (Chapter 246) of IIE at Riyadh, Saudi Arabia.

12:30 – 13:00 (Thursday)

Dr. Kudret Demirli
Professor & Chair, Industrial & Systems Engineering
Khalifa University
Abu Dhabi, UAE

Kudret Demirli received the B.Sc. and the M.Sc. degrees in Industrial Engineering from the Middle East Technical University, and the M.Sc. degree in Operations Research from Cornell University. He received his Ph.D. degree in Industrial Engineering from the University of Toronto. Dr. Demirli started his academic career as an Assistant Professor in the Department of Mechanical and Industrial Engineering, Concordia University where he became a Professor in 2011. He is currently the Chair of Industrial and Systems Engineering Department at Khalifa University of Science, Technology and Research, UAE. Dr. Demirli has had a number of industrial collaborations with aerospace companies such as Pratt & Whitney Canada, Bombardier Aerospace, Bell Helicopter, and CMC Electronics. Currently he is involved in a CRIAQ Project (Consortium for Research and Innovation in Aerospace in Quebec) in Lean Supply Chain and Operations. His main research focus is in Lean Manufacturing and Supply Chain.
Session XI: STUDENT CENTERED ENGINEERING EDUCATION
Session Chair: Dr. Chee-Ming Chan, Universiti Tun Hussein Onn Malaysia

14:00 – 14:30 (Thursday)

Dr. Chee-Ming Chan
Associate Professor and Deputy Dean (Academic and Research)
Centre for Graduate Studies
Universiti Tun Hussein Onn Malaysia
Batu Pahat, Johor, Malaysia

“Geo-disasters in Relation with Climate Change: Student’s Perspective via a Course-embedded Project” [ID 64]

Summary: The unresolved debate over the effect of climate change on the occurrence of geo-disasters has led to the relevance of incorporating the issue in geo-education today. To cultivate active learning, this was achieved with an embedded project in the engineering technology undergraduate course of Soil Mechanics and Foundations. The primary parameter examined was rainfall intensity. Students worked in groups to gather information, make careful judgment and identify links between rainfall intensity pattern over the years with localized landslide and flooding respectively. The students also conducted interviews with locals of the selected site for first-hand information and eye witness accounts. It was found that these geo-disasters were partially caused by a change in the rainfall pattern over the years, while other anthropogenic activities have also contributed to the recurring and seemingly worsening disasters. In conclusion, the project has effectively killed two birds with one stone; (1) identified the severity of climate change impact on geo-disaster occurrence in certain localities, and (2) engaged students (future engineers and technologists) in a scientific research exercise pertaining to a current issue very relevant to the course. From the education perspective, the undertaking has enabled students to hone their investigative skills in addressing a technical problem, encouraging them to adhere by their social responsibilities while performing their professional tasks.

Bio: Chee-Ming Chan is an Associate Professor with the Civil Engineering Technology Department, Faculty of Engineering Technology, Universiti Tun Hussein Onn Malaysia. She is presently holding the office of Deputy Dean in Academic and Research at the Centre for Graduate Studies in the University. Her area of expertise includes geo-materials, engineering education and higher education improvement. More recently, Dr. Chan’s current work on dredged materials from Malaysian waters has gained momentum and support from the Ministry of Science, Technology and Innovation and Department of Marine, Malaysia. She is also involved in professional bodies, including the Society for Engineering Education Malaysia (SEEM), Malaysian Geosynthetics Society (MyIGS), Institution of Engineers Malaysia (IEM), Board of Engineers Malaysia (BEM), and is an education quality auditor for the Malaysian Qualification Agency (MQA). From 2009-11, Dr. Chan served as a Postdoctoral Research Fellow at the Port and Airport Research Institute (PARI), Japan.

14:30 – 15:00 (Thursday)

Edward Williams
Adjunct Professor
University of Michigan - Dearborn, USA

Presentation Highlights: Use of up-to-date software in engineering courses, but NOT letting the course degenerate into a “software tutorial”. Extensive use and promotion of collaboration between industry and academia, to include strong encouragement of internships (US term) – the term “practicum” is one I’ve heard used in other countries. Strong affiliation of university educators and students with professional societies -- e.g., active student chapters thereof and attendance at national or international conferences encouraged and indeed funded whenever possible.

Bio: Edward J. Williams holds bachelor’s and master’s degrees in mathematics (Michigan State University, 1967; University of Wisconsin, 1968). From 1969 to 1971, he did statistical programming and analysis of biomedical data at Walter Reed Army Hospital, Washington, D.C. He joined Ford Motor Company in 1972, where he worked until retirement in December 2001 as a computer software analyst supporting statistical and simulation software. After retirement from Ford, he joined PMC, Dearborn, Michigan, as a senior simulation analyst. Also, since 1980, he has taught classes at the University of Michigan, including both undergraduate and graduate simulation classes using GPSS/HÔ, SLAM IIÔ, SIMANÔ, ProModel, SIMUL8Ô, Arena®, and Simio®. He is a member of the Institute of Industrial Engineers [IIE], the Society for Computer Simulation International [SCS], and the Michigan Simulation Users Group [MSUG]. He serves on the editorial board of the International Journal of Industrial Engineering – Applications and Practice. During the last several years, he has given invited plenary addresses on simulation and statistics at conferences in Monterrey, Mexico; Istanbul, Turkey; Genova, Italy; Riga, Latvia; and Jyväskylä, Finland. He served as a co-editor of Proceedings of the International Workshop on Harbour, Maritime and Multimodal Logistics Modelling & Simulation 2003, a conference held in Riga, Latvia. Likewise, he served the Summer Computer Simulation Conferences of 2004, 2005, and 2006 as Proceedings co-editor. He was the Simulation Applications track coordinator for the 2011 Winter Simulation Conference and the 2014 Institute of Industrial Engineers Conference.
Slobodan Urdarevik  
Master Faculty Specialist, Industrial and Manufacturing Engineering  
Western Michigan University, Kalamazoo, Michigan, USA

**Summary:** One of the biggest problems engineering students are facing is visualization. In fact, visualization skills have been found to correlate highly with successes in engineering, and mathematics in general. In order to help students to develop this skill and make teaching and learning more productive and interesting, I have developed a new teaching strategy based on using models. Experience in using the models shows that:

1) Students are able to learn the topic in the most effective and easiest way.
2) Students are fully engaged in the learning process.
3) Students can gain the knowledge and obtain the skills developed in this “hand on” approach in learning that affects students’ ability to absorb knowledge in subsequent courses where good visualization skills are required.
4) Using the models makes students feel that engineering is an interesting field to study.

The benefits for teachers are (a) very little (or no) preparation time, (b) less lecture time, (c) easy to explain the topic and (d) test results are incomparable to teaching from a textbook.

**Bio:** Slobodan Urdarevik is a Professor in the Department of Industrial and Manufacturing Engineering, College of Engineering, Western Michigan University (WMU). He has received his Bachelors and Masters from the University Kiril and Metodij in Skopje, Macedonia. His area of specialization is Engineering Graphics and Design. He is a member of Society of Manufacturing Engineers (ESM) and a Key Professor for Engineering Graphics at WMU. He was a recipient of the Outstanding New Educator Award, and Innovation Award. He has published several technical papers and has been awarded six patents. Slobodan has taught overseas and at Humber College in Toronto and University of Windsor in Canada. His area of research is developing a strategy for solving Visualization problems in teaching Engineering Graphics.

**Session XI: ENGINEERING EDUCATION**  
Session Chair: Dr. Peter Toth, Obuda University, Budapest, Hungary

**15:45 – 16:15 (Thursday)**

**ID 154: New Possibilities for Adaptive Online Learning in Engineering Education**

**Dr. Peter Toth**  
Principle Director of Trefort Ágoston, Centre for Engineering Education  
Obuda University  
Budapest, Hungary

Peter Toth is a professor of Trefort Agoston Centre for Engineering Education at Obuda University, Hungary where he is participating in technical initial teacher training and in-service training courses. Currently he is a principle director of the Centre. He earned his MSc in Engineering Education at the Budapest University of Technology and Economics, and Peter Toth has Ph.D and habil degree in Educational Research from Eotvos Lorand University. He plays leading role in planning, development and managing traditional and virtual engineering programs. Dr. Toth is doing research on pedagogy of virtual learning environment, improvement of problem-solving thinking and analyzing of spatial abilities in engineering education. He is member of Committee for Teacher Training of Hungarian Rectors’ Conference and secretary of Informatics Section of Pedagogical Committee of Hungarian Academy of Sciences.

**16:15 – 16:45 (Thursday)**

**ID 741: Modeling and Simulation of Dynamic Bungee Jumping Using Matlab - An Engineering Educational Case Study**

**Dr. Seifedine Kadry**  
Associate professor of computing and department head  
American University of the Middle East, Kuwait

Seifedine Kadry is an Associate professor of computing and department head at the American University of the Middle East, Kuwait. Dr. Seifedine Kadry received his B.Sc. in Computer Science and Applied Math in 2000 at Lebanese University, Lebanon. He got M.Sc. in Computer Science and Applied Math in 2002 from Agence universitaire de la francophonie, Lebanon. Dr. Seifedine Kadry obtained Ph.D. from Blaise Pascal University, France in 2007 in Applied Mathematics. Dr. Seifedine Kadry’s current research interests are physical science engineering, xml technology, system prognostic, stochastic differential equation, and reliability analysis.

**16:45 – 17:15 (Thursday)**

**ID 431: Important Soft Skills for Engineers to Succeed in a Working Environment**

**Dr. David Koonce**  
Associate Dean, Graduate College and Associate Professor, ISE Department  
Department of Industrial and Systems Engineering  
Russ College of Engineering and Technology  
Ohio University, Athens, Ohio, USA

David A. Koonce is the Program Director of the Ohio University online Master of Engineering Management degree program, and he led the proposal effort to create this degree program. He holds three degrees from Louisiana State University, including a Doctorate of Philosophy in Engineering Science, a Master of Science in Industrial Engineering, and a Bachelor of Science in Industrial Engineering. His dissertation focused on: “An Integrated Multiple Manufacturing Data Source Blackboard Control Architecture”. In addition to his teaching, Dr. Koonce applied his engineering skills as a software engineer for swisseto / Swiss Radio International in Bern, Switzerland. He has also represented the Institute of Industrial Engineers as the regional vice president, and he is also a member of the American Society for Engineering Education, Alpha Phi Mu – Industrial Engineering Honor Society and Tau Beta Pi – Engineering Honor Society. Dr. Koonce currently teaches courses focusing in engineering statistics, data analysis and integration, design of experiments, information systems engineering, database information systems, and system modeling. He focuses on the processes of software integration, computer integrated manufacturing and data mining, which ultimately lead engineers to build better systems resulting in more cost-effective and more reliable results.