

Keynote 1

An Integrated Approach on Operations Management, Quality Management, Maintenance and Supply Chain Management

Dr. Abdur Rahim

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Abstract

The integration in production planning, operations management, scheduling, maintenance and quality has gained much attention from researchers in recent years. These areas are usually treated independently, which yielded independent models for each function. It is widely believed that these separate models will provide suboptimal solutions, due to the fact that they are interrelated. Proper understanding of this dependency will open a new avenue for more integrated models, and result in significant savings in operational cost and improved efficiency for any production system. Operations management focuses on carefully managing the whole process to produce products or services economically. It utilizes the system view that underlies modern quality management thinking. Another important business philosophy is supply chain management involving efficient movement of materials, money and information. Operations management, quality management and supply chain management have been proposed as means of improving quality, while simultaneously reducing cost, eliminating waste and improving efficiency. They can be used as a complementary elements of an integrated strategy aimed at improving competitiveness. This talk will provide an overview of recent work on the integration of these three management systems.

Keywords

Production Planning
Quality Control
Operations Management
Scheduling
Maintenance
Quality and Supply Chain Management

Biography



Dr. Abdur Rahim is a Professor of Quantitative Methods at the Faculty of Business Administration, University of New Brunswick (UNB) at Fredericton, Canada. He joined the UNB in 1983. He received his B.Sc. (Honors) and 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. Since 1994, Dr. Rahim has been adjunct visiting Professor at King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia. He is a member of the 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 has authored and co-authored more than one hundred research papers in operations research, statistical process control, production planning, inventory control, maintenance and TQM in reputed scholarly journals. He has co-edited books on the emerging field of quality control, were published by Kluwer Academic Publishers. One presents a broad survey of optimization in quality control and focuses on industrial and national competitiveness; while the other focuses on integrated models in production planning, inventory control, and warranty analysis and maintenance policy.

Keynote 2

Improving Productivity and Occupational Health and Safety in RMG sectors of Bangladesh – An Implementation of Lean Tools

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Abstract

The overall aim and objective of readymade garments (RMG) is to improve the productivity and competitiveness of RMG industry in Bangladesh while simultaneously improving OHS and workers' conditions. In order to reach this objective the research strives towards gaining new knowledge about the dynamics between buyers and suppliers in respect to co-development of sustainable OHS and productivity advancements. This research has identified the positive synergies between productivity and OHS conditions after analysing baseline data collected from 50+ RMG industries in Bangladesh. The Lean and OHS model for the sustainable productivity improvement are developed for the intervention process has been implemented in six RMG industries with positive outcomes as expected. The second phase of intervention implementation process is in progress. The research capacity in Bangladesh is strengthening by initiating and institutionalizing this novel research domain.

Keywords

RMG, Productivity, OHS, Lean, Supplier and Buyer

Biography



Dr Sarwar Morshed is a Professor of Industrial and Production Engineering at the Faculty of Engineering, Ahsanullah University of Science and Technology (AUST). He started his academic career in Chittagong University of Engineering and Technology (CUET) in early 90s after receiving his undergraduate degree in Mechanical Engineering in 1993. He received his Masters in Industrial Management from the Centre for Industrial Management of Katholieke University of Leuven, Belgium and received his PhD in Manufacturing and Mechanical Engineering from the Birmingham University, UK on Optimization and

Scheduling. He worked in the Birmingham University as PhD researcher before his post-doctoral research in Coventry and Bath University. He also served as a visiting academic at Bath University and affiliated as a visiting research fellow at Aalborg University, Denmark. He has published 20 articles in several journal and conferences. He has been working as a Senior Researcher and Deputy Project Leader of Aalborg-AUST Research Project (POHS-BD) which has been funded by DANIDA and collaborative work among AUST, Aalborg University and BGMEA since 2015. A sustainable maturity model has been developed by integrating lean and OHS for intervention process in RMG industries. He also developed Multi-objective knowledge based scheduling techniques of genetic algorithm (GA) for cancer patients in dynamic situation along with his hybrid GA framework for industrial and service scheduling. Prof Morshed has affiliations with HEA (UK), OR Society, IEOM Society and IEB.

Keynote 3

Engineering Education -Challenges for the 21st Century

Dr. Mukti M Rana

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Abstract

Engineering is the profession in which a knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to utilize economically the materials and forces of nature for the benefit of mankind. Engineering has a direct and vital impact on the quality of life for all people. Various challenges and problems associated with our daily life changes based on societal and economic need. Engineers in the new paradigm of globalization need to be prepared with new sets of skills through integrated education and research approaches. Engineering education has a very important role in society, bridging the gap between the world of today and education and addressing local, regional and global challenges. The focus of 21st century engineering education is hence vital to prepare engineers who will focus on sustainable design among others. This talk will focus on the challenges engineering and engineering education faces in the 21st Century as well as describe the role and opportunities engineering educators have to respond to these challenges.

Keywords

Engineering
Education
Challenges
Curriculum innovation
Assessment

Biography



Dr. Mukti Rana is an associate professor and chair of the Department of Physics and Engineering and Optical Science Center for Applied Research (OSCAR) at Delaware State University (DSU). Dr. Rana received his B.Sc. in Electrical and Electronics Engineering from the Khulna University of Engineering and Technology, Bangladesh (1992-1997), and his M.S. (2000-2002) and Ph.D. (2003-2007) from The University of Texas at Arlington (UTA) in Electrical Engineering. He also served as an Assistant Professor in the Department of Electrical and Computer Engineering at The University of South Alabama, Mobile between 2008-2010. In 2010, he joined in the Department of Physics and Engineering and OSCAR of DSU. Dr. Rana is the principal investigator of two centers at DSU – Center for Research and Education on Optical Sciences and Applications funded by the National Science Foundation, and Optics for Space Technology and Applied Research Center funded by the National Aeronautics and Space Administration. Each of these grants is funded for 5 Million for 5 years. His current research interest includes uncooled infrared detectors and microelectro-mechanical (MEMS) devices. Dr. Rana is the recipient of excellence in research award in 2016, vice president's award for excellence in research in 2015 of DSU.

Keynote 4

Trend of the Future Logistics and Challenges to Improve Human Skills

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Abstract

The GDP growth has declined for last half century. Disconnect between the growth and social nourishment is prevalent. A big economic growth was always strengthened by a big manufacturing revolution. The economic revolution changed three times in recent history, (i) Steam Engine in mid-19th century, (ii) Mass Production (Ford's Assembly line) at the beginning of 20th century, and (iii) Automation Wave in the 1970s. The next big change is at the doorstep, approaching with the Smart Technology. Would this new technology bring benefits to all, or only towards hand-pick smart companies and nations with creative skills? What are those smart technologies and how to improve skills to stay relevant and embrace the challenges?

Keywords

economic growth, manufacturing revolution, smart technology, creative skills

Biography

Mohammad Anwar Rahman is an Associate Professor at the Central Connecticut State University, USA. He earned Ph.D. in Industrial Engineering; Master degrees in (i) Industrial & Production Engineering, (ii) Industrial Manufacturing & Systems Engineering, and (iii) Applied Statistics, and B.S. degree in Mechanical Engineering from Bangladesh University of Engineering & Technology. His research focuses on Supply Chain, Logistics and Transportation Systems directing to uncertainty decision models. His researches published in academic journals and in presentations in national and international conferences. He completed funded projects supported by U.S. Department of Transportation, Mississippi Department of Education, National Science Foundation Center of Excellence, and American Association of University Professors (AAUP) grants. He serves in IEOM Editorial Board and member of Decision Science Institute (DSI), American Society of Quality (ASQ) and A



Keynote 5

Ford's Product Development System for Cost Reduction

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Abstract

The vehicle development cost is increasing as vehicles are getting more and more sophisticated. To have competitive edge in a highly competitive market, industries are integrating suppliers as one and using more and more analytical (CAE) tools before making prototype for test. Often performance of a component may be different from the performance of the component in a system because of system interactions. As the suppliers are integrated with OEMs as one, all the resources (supplier and OEMs) can be used effectively to assess those interactions and can help take corrective measures in the design phase of a vehicle. The packaging of an engine in a vehicle without degrading the performance of the engine is a challenge and analytical tools are used extensively to accommodate those challenges. As suppliers are onboard accommodating those challenges are dual responsibility and costs are shared. This presentation will also show how Ford's product development system is aligned for cost reduction.

Keywords

product development, analytical tools, CAE tools, OEM and Supplier

Biography

Dr. Ahsanul Karim is an Automotive Engineer at Ford Motor Company in Dearborn, Michigan. His work at Ford focused mainly on the areas of turbomachinery, flow mixing, and impact of air-breathing system on turbocharger and flow noise (aero-acoustic) using 3D-CFD. He is also an adjunct Instructor in Industrial Engineering in the A. Leon Linton Department of Mechanical Engineering at the Lawrence Technological University, Michigan, USA. He received Bachelor of Science in Mechanical Engineering from Bangladesh University of Engineering and Technology, Dhaka, Bangladesh. Dr. Karim received his Master of Science and Ph.D. in Mechanical and Aerospace Engineering from Illinois Institute in Chicago, Illinois, USA. After receiving Ph. D. he joined Aerospace Engineering and Mechanics Department at the University of Minnesota in Minneapolis as a post-doctoral research associate. Dr. Karim has accumulated over a decade of experience in automotive industry as a product development engineer. He is a certified six sigma green belt. He has received numerous Technical Excellence Awards at Ford, including the prestigious Henry Ford Technology Award in 2015 for an innovative design of low flow noise turbocharger. Dr. Karim has published journal and conference papers, and has six US patents, with several new patent applications are pending. He is a reviewer for ASME, SAE Noise Control Engineering Journal and IEOM.



Invited Talk 1

Optimization and Optimal Control Technique: Applications to Modeling Healthcare Systems

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Abstract

Healthcare for the growing population worldwide has become major concern because of the increasing threats of infectious diseases and their rate of mortality in the age of climatic change. The optimal management of therapeutic treatment and the huge systematic costs of healthcare have become challenge for the healthcare providers [6]. The simulation based optimization and optimal control is a technique used to efficiently find solutions to problems of healthcare systems which seeks to maximize or minimize the performance measures of the healthcare by manipulating the state variables under certain restrictions known as constraints. The dynamic optimization is crucial to characterize all aspects of global change dynamics, from the Earth's climate system [3,7] to human physiology [7]. These nonlinear phenomena of rapid change over the globe as well as in the human physiological systems can be captured and modeled by the nonlinear ordinary differential equations (NODEs) in the form of mathematical modeling [1-5]. Since human body is a highly nonlinear, robust, and an adaptive physiological control system, there is a close relationship between control theory and biology [7]. So nonlinearity plays an influential role in describing the behavior of complex dynamical systems and the mysterious mechanisms of the infectious diseases in human body.

In recent years, mathematical models have become important tools in analyzing and describing the changing dynamics of biological and biomedical systems. The processes in biology and medicine can be, in general, described by mathematical models where the nonlinear ordinary differential equations are the key ingredients. Optimal control technique fuels on such analysis in obtaining the optimal control strategies in the form of Pontryagin Maximum Principle. This technique provides new results by applying the old theories. In this talk, we address some of recent developments of modeling the nonlinear behavior of the complex dynamical systems arising in biology and medicine. Optimal control technique with constraints can be of advantageous to obtain the better strategy as a special feature in some cases. Numerical treatment is performed to illustrate the results.

Keywords: Optimization, Optimal control, Mathematical modeling, Healthcare systems, Numerical simulations

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Biography

Dr. Haider Ali Biswas is currently affiliated with Khulna University, Bangladesh as a Professor of Mathematics under Science Engineering and Technology School and currently holds the position of the Head of Mathematics Discipline. Prof. Biswas obtained his B Sc (Honors) in Mathematics and M Sc in Applied Mathematics in the year 1993 and 1994 respectively from the University of Chittagong, Bangladesh, M Phil in Mathematics in the year 2008 from the University of Rajshahi, Bangladesh and Ph D in Electrical and Computer Engineering from the University of Porto, Portugal in 2013. He has more than 17 years teaching and research experience in the graduate and post-graduate levels at different public universities in Bangladesh. He published three books, one chapters and more than 70 research papers in the peer reviewed journals and international conferences. Prof. Biswas has worked at several R & D projects in home and abroad as PI and/or Researcher. His present research interests include Optimal Control with State Constraints, Nonsmooth Analysis, Mathematical Modeling and Simulation, Mathematical Biology and Biomedicine, Epidemiology of Infectious Diseases. He is the life/general members of several professional societies and/or research organizations like Bangladesh Mathematical Society (BMS), Asiatic Society of Bangladesh (ASB), Institute of Mathematics and its Applications (IMA), UK, European Mathematical Society (EMS) and Society for Mathematical Biology (SMB). Dr. Biswas was the General Secretary of Mathematical Forum Khulna in 2013-2015. Dr. Biswas organized several national and international seminars/workshops/conferences in home and abroad and he has been working as editor/member of editorial boards of several international peer-reviewed journals including 'Ganit'- Journal of Bangladesh Mathematical Society. Recently Professor Biswas has been nominated the Member of the Council of Asian Science Editors (CASE) for 2017-2020 and the Associate Member of the Organization for Women in Science for the Developing World (OWSD) since 2017.



Invited Talk 2

Sustainable Innovation in Research and Education

Dr. A.R.M. Harunur Rashid

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Abstract

Developed countries have been harnessing the benefits of cutting edge research and quality education. However, developing countries could not go in the same route due to financial constraint. However, with advance of technology and research findings, disruptive innovation could bridge the gap between the developed and developing countries. Relevant ideas in this regard are discussed that could be useful for the developing nations to progress.

Keywords

Innovation, Education, Research, Engineering Education

Biography

Dr. A R M Harunur Rashid is an Assistant professor of Department of Mechanical and Chemical Engineering (MCE) at the Islamic University of Technology (IUT). He earned his PhD from Dublin City University (DCU) and B.Sc. in Mechanical Engineering from Bangladesh University of Engineering and Technology (BUET). His research activities include the area of Ergonomics, Engineering Design, Management, Operations Research and Renewable Energy.



Invited Talk 3

Supply Chain Management: A New Dimension in Service Industry

Dr. Md. Mamun Habib

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Abstract

This invited talk represents theory and evolution of Supply Chain Management (SCM) as well as highlights chronological prospective of SCM in terms of time frame in different areas of manufacturing and service industries. The objective of SCM is to incorporate activities across and within organizations for providing the customer/stakeholders value. Supply Chain Management (SCM) has been widely researched in numerous application domains during the last decade. Despite the popularity of SCM research and applications, considerable confusion remains as to its meaning. There are several attempts made by researchers and practitioners to appropriately define SCM.

Finally, this paper would demonstrate Educational Supply Chain Management, as the application of SCM in the service industry, which would unlock other applications of SCM in different arenas. Integrated Tertiary Educational Supply Chain Management (ITESCM) model constructs were identified and confirmed by 493 respondents, representing experts and administrators, faculty, staffs of the university, employers, graduates, etc. The resulting model was subsequently evaluated for accuracy and validity by multiple linear regressions (MLR) analysis and the structural equation modeling (SEM) technique. The research model provides a novel approach for decision makers of each supply chain components to review and appraise their performance toward fulfillment of ultimate goals i.e. producing high-caliber graduates and high-impact research outcomes, which represent two main contributions, for the betterment of the end customer, i.e., the society.

Keywords

Supply chain management, service industry, raw materials, finished products

Biography



Dr. Md. Mamun Habib is an Associate Professor at BRAC Business School (BBS), BRAC University, Bangladesh. In addition, Dr. Habib is the Visiting Scientist of University of Texas – Arlington, USA. Prior to that, he was Associate Professor at Asia Graduate School of Business (AGSB) at UNITAR International University,

Malaysia and the Dept. of Decision Sciences, Universiti Utara Malaysia (UUM), Malaysia. He is the Editor-in-Chief in International Journal of Supply Chain Management (IJSCM), London, UK (SCOPUS Indexed). He accomplished his Ph.D. and M.S. with outstanding performance in Computer & Engineering Management (CEM) under the Graduate School of Business (GSB) from Assumption University, Thailand.

As a researcher, Dr. Habib published more than 80 research papers, including Conference Proceedings, Journal articles, and book chapters/books. He serves as the Editor-in-Chief/Lead Guest Editor/Editor/Editorial Board Member/Reviewer of more than 20 journals, particularly Scopus and Thomson Reuters Indexed Journals. Also, he delivers lecture as Keynote Speaker at more than 25 international conferences. He also serves as General Chair, Program Chair, Technical Chair, Organizing Committee Member, Technical Committee Member, Track Chair, Session Chair as well as Reviewer of numerous international conferences. His core research areas are supply chain management, production & operations management, research methodology, engineering management. Finally, Dr. Habib is an active member of different professional organizations, including IEEE, IEOM, IETI, IRED, GRDS, IEB, AIMS, INFOMS, just to name a few.

Workshop

How to write papers for publishing in journals and conference proceedings

Resource Person:

Dr. Md. Mamun Habib

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Outlines of Workshop

A1: Module 1

1. Basic Idea about Research
 - 1.1 What is research?
 - 1.2 How could you search and store papers?
 - 1.2.1 Google Scholar
 - 1.2.2 Online Databases [Emerald/EBSCO/JSTORE/IEEE/SciVerse (SCOPUS)]
 - 1.3 How could you get new ideas?
 - 1.4 Basic/Applied research
 - 1.5 Qualitative/Quantitative Research
 - 1.6 Exploratory/Descriptive/Causal research

A2: Module 2

2. Research publications
 - 2.1 Conference papers
 - 2.1.1 How could you search conference in your field?
 - 2.1.2 Sample of Conference Call for papers
 - 2.2 Journal papers
 - 2.2.1 How could determine the quality of journal?
 - 2.2.2 Sample of Journal Call for Papers
 - 2.3 Book chapter/editorial book
 - 2.4 Book (sole author book)
 - 2.5 Open access/Traditional access

A3: Module 3

3. Outlines of research publications
 - 3.1 Abstract

- 3.1.1 Keywords
- 3.2 Introduction
 - 3.2.1 Rationale/General Background
 - 3.2.2 Objectives [Problem Statement/research questions]
 - 3.2.3 Structure
- 3.3 Literature review/related works
 - 3.3.1 Research ethics
 - 3.3.2 Plagiarism (Turnitin Software)
- 3.4 Methodology
 - 3.4.1 Type of Data (Primary/Secondary)
 - 3.4.2 Sampling Procedures (Probability/Non-probability)
 - 3.4.3 Sample Size Determination
 - 3.4.4 Hypothesis
 - 3.4.5 Questionnaire Design
 - 3.4.6 Survey Techniques
- 3.5 Model development
 - 3.5.1 Theoretical model
 - 3.5.2 Conceptual model
- 3.6 Model evaluation/Discussion/Statistical Analysis
 - 3.6.1 Descriptive Analysis
 - 3.6.2 Inferential Analysis (Structural Equation Modeling)
- 3.7 Conclusion
 - 3.7.1 Findings
 - 3.7.2 Contribution/Novelties
- 3.8 Bibliography/References
 - 3.8.1 APA Style
 - 3.8.2 NR Style
- 3.9 Appendices

A4: Module 4

- 4. How could you read/summarize papers (hard/soft copy)?
- 5. What would be review process?
 - 5.1 Conference: Review process (Technical committee member)
 - 5.2 Journal: How could you submit paper at Online System (e.g. IJSCM)**
 - 5.3 Journal: Peer review or blind review
 - 5.4 Journal: Role of Editor-in-chief, Editorial board members, Reviewer
- 6. How could you compile reviewers' comments?
 - 6.1 Final manuscript
- 7. Academic writing
 - 7.1 Eight (8) features of academic writing
- 8. Demonstration of Sample papers
 - 8.1 one (1) Conference paper, 1 journal paper, 2 book chapters, one (1) low quality paper