

Department of Industrial Engineering  
Jordan University of Science and Technology  
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# Omar Bataineh

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## RESEARCH INTERESTS

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My research interests broadly include

- Materials in Manufacturing
- Modeling and Optimization
- Production Management
- Multi-Criteria Decision Making

## EDUCATION

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**(2004)**

Doctor of Philosophy (Ph.D.), University of Minnesota, Minneapolis, MN, USA

*Major:* Mechanical Engineering

*Minor:* Industrial Engineering

**(2000)**

Master of Science (M.Sc.), University of Minnesota, Minneapolis, MN, USA

*Major:* Mechanical Engineering

*Minor:* Industrial Engineering

**(1997)**

Bachelor of Science (B.Sc.), Jordan University of Science and Technology, Irbid, Jordan

*Major:* Mechanical Engineering

*Track:* Manufacturing

## WORK EXPERIENCE

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**(2012 – Current)**

Associate Professor, Department of Industrial Engineering, Jordan University of Science and Technology, Irbid, Jordan

**(2017 – 2018)**

Acting Chairman of the Department of Industrial Engineering, Jordan University of Science

and Technology, Irbid, Jordan

**(2015 – 2016)**

Associate Professor, Department of Industrial Engineering, American University of the Middle East, (AUM), Egaila, Kuwait

**(2009 – 2012)**

Assistant Professor (on-leave), Department of Mechanical Engineering, Prince Mohammad Bin Fahd University (PMU), Al Khobar, Saudi Arabia

**(2004 – 2012)**

Assistant Professor, Department of Industrial Engineering, Jordan University of Science and Technology, Irbid, Jordan

**(1999 – 2003)**

Teaching and Research Assistant, Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN, USA

**(June – July 1996)**

Systems Maintenance Engineer (Co-op program), Suez Cement Co., Cairo, Egypt

## **ACADEMIC EXPERIENCE**

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- Acting Chairman of the Department of Industrial Engineering, Jordan University of Science and Technology, Irbid, Jordan (2017 – 2018)
- Chair and member of key committees on the department and college levels at Jordan University of Science and Technology, Prince Mohammad Bin Fahd University, and American University of the Middle East:
  - Jordan University of Science and Technology, Jordan
    - Scientific research committee
    - Graduate studies committee
    - Engineering curriculum committee
    - Co-op program committee
    - Graduation projects committee
    - IE recruitment and hiring committee
    - Academic promotions committee
    - JUST strategic planning committee

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- Prince Mohammad Bin Fahd University, Saudi Arabia
    - Undergraduate and accreditation committee
    - Student affairs committee
    - NCAAA committee
  - American University of the Middle East, Kuwait
    - ABET (Accreditation Board for Engineering and Technology) Committee
  - Advised Master students and supervised various senior students' projects at three universities (*Selected ones highlighted below*)
    - Jordan University of Science and Technology, Jordan
      - Master theses
        - *Mohammad Shbool*, "Investigation of the major factors that affect the surface roughness and energy dissipation in the end milling of AISI D2 steel", January 2009
        - *Rami Altaweel*, "Applying SIX SIGMA methodology based on "DMAIC" tools to reduce production defects in textile manufacturing", January 2010
        - *Abdurahman Ibrahim*, "The effect of probability distributions on work performance measures in serial production lines", January 2010
        - *Wala AlShorman*, "Development of an empirical model for the wear rate of contact bearing materials using a standard pin-on-disc test", August 2018
        - *Aseel Khanfar*, "A simulation-based framework for evaluation of healthcare systems with interacting factors and correlated performance measures", November 2018
        - *Anood Athamneh*, "A modified Triad methodology for project control under uncertainty", January 2019
        - *Fadia Bdour*, "Employing Mixture Design of Experiments Method in the Sensitivity Analysis Used for Multi-Criteria Decision-Making Problems", January 2021
      - Senior projects
        - *Nabeel Jaber, Majed Sorouri, Abdullah Tomaizy, and Mahmoud Khalayleh*, "Applying Quality and Lean Methods for Plastic Bags' Manufacturing", Fall 2019/2020
        - *Malek Wafa and Omar Sadeddin*, "Implementing Total Preventive

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- Maintenance (TPM) for the Blow Molding Equipment at Al Qemma plastic factory”, Spring 2017/2018
- *Shayma Al-Faqer, and Raghad Sabah*, “Quality control and 5S implementation: FINE factory case study”, Spring 2016/2017
  - *Bashar Khamaiseh, and Mohamad Al-Bataineh*, “Assembly line balancing in a Sports wear production line at Classic Fashion Company”, Fall 2016/2017
  - *Dina Abu Hjeelah, and Sereen Arabiat*, “Using Expert Choice and the analytic hierarchy process (AHP) to find the best CAD software for mechanical design”, Fall 2013/2014
  - *Omar Barqawi and Anas Al-Shobaki*, “Applying design of experiments to determine optimal process conditions in the welding of aluminum alloys using metal inert gas (MIG) technology”, Spring 2008/2009
  - *Abeer Lataifeh and Maysaa Al-Shraideh*, “A study on the turning process of medium carbon steel (MCS) to improve surface finish and reduce machining time using DOE”, Spring 2008/2009
  - *Zaid Ayoub and Mohammad Al-Umouh*, “Applying ANOVA to study the effect of alumina concentration and sintering time in the copper- alumina alloy made by powder metallurgy”, Spring 2007/2008
  - *Saif Abu-Ghazaleh and Ali Al-Ghawi*, “Implementation of total productive maintenance (TPM) to reduce system downtime in the baby diapers production line at Fine Hygienic Paper Company - Nuqul Group”, Spring 2007/2008
- Prince Mohammad Bin Fahd University, Saudi Arabia
    - Senior projects
      - Due to *the* infancy of the ME program while working at PMU, only one senior project was supervised. It involved working with the first batch of senior students on a parametric study to optimize the electroplating process of copper coins immersed in an electrolytic solution.
  - American University of the Middle East, Kuwait
    - Senior projects
      - *Abdullatif Al Saleh, Omar Al Melhem, Abdulaziz Al Subaie, Yousef*

*Dawood, and Idrees Saadi*, “Assembly line balancing in manufacturing operations at Al Hasawi group”, Fall 2015/2016

- *Dalal Haji, Hawraa AlSalem, Haya AlBadah, and Shoug Alawadhi*, “Implentation of DMAIC tools to reduce production defects in manufacturing products”, Fall 2015/2016
- *Esraa Al-Tamimi, Naaema Al-Muwaizri, Sara Al-Azmi, and Wadha Al-Hamlan*, “Improving productivity in a production line through applying principles of total productive maintenance (TPM)”, Fall 2015/2016

## PUBLICATIONS

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- Alshraideh, H., Rababah, M., Al-Hawari, T., and **Bataineh, O.**, (2021). A Gaussian process approach for monitoring autocorrelated batch production processes. *Quality and Reliability Engineering International*, (Accepted)
- **Bataineh, O.**, Al-Dwairi, A., Ayoub, Z., Al-Omsh, M., (2021). DOE-based experimental investigation and optimization of hardness and corrosion rate for Cu-x%Al<sub>2</sub>O<sub>3</sub> as processed by powder metallurgy. *AIMS Materials Science*, Vol. 8, No. 3, pp. 416-433
- **Bataineh, O.**, Al-Hawari, T., Alshraideh, H., and Dalalah., D., (2019). A sequential TPM-based scheme for improving production effectiveness presented with a case study. *Journal of Quality in Maintenance Engineering*, Vol. 25, No. 1, pp. 144-161
- Dalalah, D., **Bataineh, O.**, and Alkhaledi, K., (2019). Extending the WEDBA to the fuzzy multi-criteria decision-making environment. *Journal of Simulation*, Vol. 13, No. 3, pp. 209-225
- Al-Hawari, T., Naji, A., Alshraideh, H., and **Bataineh, O.**, (2019). Platelets inventory management: A rolling horizon Sim--Opt approach for an age-differentiated demand. *International Journal of Computer Applications in Technology*, Vol. 59, No. 4, pp. 330-346
- **Bataineh, O.**, (2019). Effect of Roller Burnishing on the Surface Roughness and Hardness of 6061-T6 Aluminum Alloy Using ANOVA. *International Journal of Mechanical Engineering and Robotics Research*, Vol. 8, No. 4, pp. 565-569
- **Bataineh, O.**, and Almomani, M., (2018). Applying ANOVA and DOE to study the effect of manganese on the hardness and wear rate of artificially aged Al-4.5 wt% Cu alloys. *International Journal of Cast Metals Research*, Vol. 31, No. 1, pp. 56-63

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- **Bataineh, O.**, Al-Shraideh, M., Latifeh, A., (2018). A Quadratic Regression Model with Interaction to Optimize the Turning Conditions of Mild Carbon Steel. *International Journal of Mechanical Engineering and Robotics Research*, Vol. 7, No. 1, pp. 78-82
  - **Bataineh O.**, Hjeelah, D., and Arabiat, S. (2017). Multi-criteria decision making using AHP to select the best CAD software. In: Abraham A., Kovalev S., Tarassov V., Snasel V., Vasileva M., Sukhanov A. (eds). Proceedings of the Second International Scientific Conference “Intelligent Information Technologies for Industry” (IITI’17). IITI 2017. Advances in Intelligent Systems and Computing, Varna, Bulgaria, pp. 106–115
  - Alrashdan, A., **Bataineh, O.**, and Shbool, M., (2014). Multi-criteria end milling parameters optimization of AISI D2 steel using genetic algorithm. *International Journal of Advanced Manufacturing Technology*, Vol. 73, pp. 1201-1212
  - **Bataineh, O.**, (2013). An empirical model for the coefficient of friction in injection molding of thermoplastics. *ASME 2013 International Manufacturing Science and Engineering Conference*, June 10–14, 2013, Wisconsin, USA, Vol. 1, pp. 21-27
  - Hayajneh, M., **Bataineh, O.**, Al-Tawil, R., (2013). Applying Six Sigma Methodology based on “DMAIC” tools to reduce production defects in textile manufacturing. In: Jian, M., Iliescu, M., Dobrescu, T. (eds), Recent Advances in Industrial and Manufacturing Technologies, Proceedings of the 1st International Conference on Industrial and Manufacturing Technologies (INMAT '13), Athens, Greece, pp. 19-24
  - **Bataineh, O.**, and Al-dwairi, A., (2012). Integrated SPC-based scheme utilizing variable control charts and  $C_{pm}$  ratio to improve manufacturing quality of empty hard gelatin capsules. *International Journal of Productivity and Quality Management*, Vol. 9, No. 3, pp. 332-351
  - **Bataineh, O.**, Al-Shoubaki, A., Barqawi, O., (2012). Optimising Process Conditions in MIG Welding of Aluminum Alloys through Factorial Design Experiments, In: Ponis, S., Karas, I., Momete, D. (eds), Latest Trends in Environmental and Manufacturing Engineering, Proceedings of the 5th WSEAS International Conference on Manufacturing Engineering, Quality and Production Systems (MEQAPS '12), Vienna, Austria, pp. 21-26
  - **Bataineh, O.**, (2010). An analytical model to predict the release force in a soft hub fitted over a rigid shaft. *Proceedings of the 2010 International Conference on Advances in Mechanical Engineering*, Shah Alam, Selangor, Malaysia, pp. 461-464
  - **Bataineh, O.**, Al-Aomar, R., and Abu Shakra, A., (2010). Simulaton-based optimization

for performance enhancement of public departments”, *Jordan Journal of Mechanical and Industrial Engineering*, Vol. 4, No. 3, pp. 346-351

- **Bataineh, O.**, and Dalalah, D., (2010). Strategy for optimising cutting parameters in the dry turning of 6061-T6 aluminium alloy based on design of experiments and the generalised pattern search algorithm. *International Journal of Machining and Machinability of Materials*, Vol.7, Nos. 1-2, pp. 39-57
- Dalalah, D., and **Bataineh, O.**, (2009). A fuzzy logic approach to the selection of the best silicon crystal slicing technology. *Expert Systems with Applications*, Vol. 36, No. 2, pp. 3712-3719
- **Bataineh, O.**, Abdulla, H., and Abu-Saif, A., (2008). Development and application of a metaheuristic optimization procedure integrated with simulation for a bus transit system, *IEEE International Conference on Industrial Engineering and Engineering Management*, Singapore, pp. 1749-1753
- Hassan, A.M., **Bataineh, O.**, and Abed, K.M., (2008). The effect of time and temperature on the precipitation behavior and hardness of Al-4wt%Cu alloy using design of experiments, *Journal of Materials Processing Technology*, Vol. 204, Nos. 1-3, pp. 343-349
- **Bataineh, O.**, and Klamecki, B., (2005). Prediction of local part-mold forces and ejection force in injection molding. *ASME - Journal of Manufacturing Science and Engineering*, Vol. 127, No. 3, pp. 598-604
- **Bataineh, O.**, Klamecki, B., and Koepke, B. G., (2003). Effect of pulsed magnetic treatment on drill wear. *Journal of Materials Processing Technology*, 134, pp. 190-196

## SELECTED TALKS/PRESENTATIONS

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- “Modeling wear rate of annealed AISI 440C used in roller bearings”, *Keynote speech* presented at the International Conference on Materials Engineering and Nanotechnology (ICMEN 2021), Kuala Lumpur, Malaysia (Apr. 2021)
- “A Second-order statistical model to optimize the conditions of turning mc steel”, presented at the *International Conference on Automation, Mechanical and Design Engineering* (ICAMD 2018), Kuala Lumpur, Malaysia (Mar. 2018)
- “Multi-criteria decision making using AHP to select the best CAD software”, presented at

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the *Second International Scientific Conference “Intelligent Information Technologies for Industry”* (IITI'17), Varna, Bulgaria (Sep. 2017)

- “Effect of manganese addition and ageing treatment on the mechanical properties of aluminum-copper alloys”, presented at the *Graduate Seminar* course conducted by the 4<sup>th</sup> Asia Conference on Mechanical and Materials Engineering (ACMME 2016), Kuala Lumpur, Malaysia (Jul. 2016)
- “Voice of customer (VOC)”, presented in the *Graduate Seminar* course conducted by the Department of Industrial Engineering, Jordan University of Science and Technology, Jordan (Apr. 2016)
- “An empirical model for the coefficient of friction in injection molding of thermoplastics”, presented at the *ASME 2013 International Manufacturing Science and Engineering Conference*, Wisconsin, USA (Jun. 2013)
- “Application of statistical process control to improve product quality in manufacturing processes”, presented at the *2<sup>nd</sup> International Conference on Mechanical, Industrial, and Manufacturing Technologies* (MIMT 2011), Singapore (Feb. 2011)
- “An analytical model to predict the release force in a soft hub fitted over a rigid shaft”, presented at the *International Conference on Advances in Mechanical Engineering* (ICAME2010), Shah Alam, Selangor, Malaysia (Dec. 2010)
- “A case study on using SPC tools to improve manufacturing quality of empty hard gelatin capsules”, presented at the *11<sup>th</sup> International Conference on QiR (Quality in Research)*, Depok, Indonesia (Aug. 2009)
- “Development and application of a metaheuristic optimization procedure integrated with simulation for a bus transit system”, presented at the *Second International Conference on Modeling, Simulation and Applied Optimization (ICMSAO-07)*, Singapore (Dec. 2008)
- “Simulation-based optimization for performance enhancement of public service offices”, presented at the *IEEE International Conference on Industrial Engineering and Engineering Management*, Abu-Dhabi, UAE (Mar. 2007)



## RESEARCH GRANTS

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- “Development of an Empirical Model for the Wear Rate of Contact Bearing Materials Using a Standard Pin-On-Disc Test”, Deanship of Research, Jordan University of Science and Technology, Irbid, Jordan (2017-2018)
- “Investigation of the major factors that affect the surface roughness and energy dissipation in the end milling of AISI D2 steel”, Deanship of Research, Jordan University of Science and Technology, Irbid, Jordan (2008-2009)
- “Applying design of experiments to determine optimal process conditions in the welding of aluminum alloys using metal inert gas (MIG) technology”, King Abdulla II Fund for Development, Amman, Jordan (2007)
- “Analytical and numerical estimation of the magnitude of interference in interference fits”, Deanship of Research, Jordan University of Science and Technology, Irbid, Jordan (2004-2005)
- “Pulsed magnetic treatment of cutting tools”, Minnesota Technology Inc. (MTI), MN, USA (1999-2000)

## HONORS/AWARDS

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- Appeared on the Department’s Honor List for the semesters throughout 1994-1996, Mechanical Engineering Department, Jordan University of Science and Technology, Irbid Jordan
- Awarded Ph.D. fellowship by Jordan University of Science and Technology to pursue the Ph.D. degree at the University of Minnesota, Minneapolis, USA, 2000-2004
- “Best Presentation Award” for the paper entitled “Optimising Process Conditions in MIG Welding of Aluminum Alloys through Factorial Design Experiments”, which was presented at the 5th WSEAS International Conference on Manufacturing Engineering, Quality and Production Systems (MEQAPS '12), Vienna, Austria

## PROFESSIONAL SERVICES

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1. Refereed numerous research papers for reputable international journals including

- *International Journal of Advanced Manufacturing Technology*
  - *Journal of Intelligent Manufacturing*
  - *Journal of Materials Processing Technology*
  - *International Journal of Machining and Machinability of Materials*
  - *Jordan Journal of Mechanical and Industrial Engineering*
2. Industrial Engineering and Engineering Management (IEEM) Track Chair and Congress Board Member for the 1<sup>st</sup> International Congress on Engineering Technologies (EngiTek 2020), 16-18 June 2020, Irbid, Jordan
  3. Organizing Committee Chair for the 2018 IE Scientific Day held at Jordan University of Science and Technology, Irbid, Jordan
  4. Keynote speech entitled “Modeling wear rate of annealed AISI 440C used in roller bearings” presented at the International Conference on Materials Engineering and Nanotechnology, 3-4 April 2021, Kuala Lumpur, Malaysia.
  5. Participating in the QS Global Academic Survey, which contributes to the QS World University Rankings and QS Graduate Employability Rankings.
  6. Dissertation Committee Member for the PhD thesis entitled “Ultra-High Precision Machining of Optical Aluminium (RSA- 443)” and presented by “Zwelinzima Andrew Mkoko” from the Nelson Mandela University, Port Elizabeth, South Africa (Dec. 2018)
  7. Technical Committee Member for a number of international conferences such as:
    - a. The 5<sup>th</sup> International Conference on Mechatronics and Robotics Engineering (ICMRE'19), Feb. 16-18, 2019, Rome, Italy
    - b. The 6<sup>th</sup> International Conference on System Modeling and Optimization (ICSMO2018), Feb. 07-11, 2018, Valenciennes, France
    - c. IEEE International Conference on Industrial Engineering and Engineering Management (IEEM2008), Dec. 08-11 2008, Singapore

## **INDUSTRY COLLABORATION AND CONSULTING**

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1. “Reliability centred maintenance”, One-week training course held at CERT Thales Institute for Qatar Emiri Navy, Macquarie Group, Abu Dhabi, UAE (2006)
2. “Quality control” consultation for Talal Abu-Ghazaleh & Co. International (TAGI), Amman, Jordan (2008)

3. “Process control”, Twenty-hour training course for the Arab Center for Pharmaceutical and Chemical Industries (ACAP) , Amman, Jordan (2008)
4. “Implementation of Total preventive maintenance (TPM)” consultation for the United Beverage Company, Kuwait (2015)

## **PROFESSIONAL DEVELOPMENT WORKSHOPS**

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- “Contemporary Teaching Methods”, Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid, Jordan (Jul. 2018)
- “Online Learning Design”, Academic Development and Quality Assurance Center, Jordan University of Science and Technology, Irbid, Jordan (Jan. 2018)
- “LabVIEW Core 1”, training course by National Instruments, Prince Mohammad Bin Fahd University, Saudi Arabia (Feb. 2011)
- “Hands-On Training on Banner Software”, Learning Resources Center, Prince Mohammad Bin Fahd University, Saudi Arabia (Sep. 2010)
- “Integrating content in Blackboard”, Learning Resources Center, Prince Mohammad Bin Fahd University, Saudi Arabia (Oct. 2009)
- “Introduction to Smart Board Tools”, Learning Resources Center, Prince Mohammad Bin Fahd University, Saudi Arabia (Oct. 2009)
- “Statistical Analysis in Scientific Research and University Exams”, Academic Development Center (ADC), JUST, Irbid, Jordan (2009)
- “Effective Learning Using Modern Technologies”, Consultative Center for Science and Technology (CCST), Jordan University of Science and Technology, Irbid, Jordan (Jun. 2004)
- “International TA Program”, Center for Teaching and Learning, University of Minnesota, Minneapolis, MN, USA (Feb. 1999)

## TAUGHT COURSES

CODE	NUMBER	INSTITUTION	COURSE NAME
IE	362	JUST*	Manufacturing Processes I
IE	441	JUST	Quality Control
IE	440	JUST	Applied Statistics
IE	341	JUST	Engineering Economy
IE	462	JUST	Engineering Materials Lab
IE	464	JUST	Manufacturing Processes Lab
IE	518	JUST	Computer Aided Design and Manufacturing
IE	462	JUST	CAD/CAM
IE	591	JUST	Graduation Project (1)
IE	592	JUST	Graduation Project (2)
IE	710	JUST	Design of Engineering Experiments
IE	790	JUST	Seminar in Industrial Engineering
MEEN	2313	PMU**	Mechanics of Solids
MEEN	3211	PMU	Introduction to Manufacturing Systems
MEEN	3212	PMU	Manufacturing Methods in Design
MEEN	3392	PMU	Mechanical Engineering Design II
MEEN	4341	PMU	Corrosion Engineering
GEEN	2311	PMU	Statics and Dynamics of Rigid Bodies I
IEG	240	AUM***	Quality, Reliability and Maintenance
IEG	370	AUM	Current Topics in Industrial Engineering III

\* Jordan University of Science and Technology, Irbid, Jordan

\*\* Prince Mohammad Bin Fahd University, Al Khobar, Saudi Arabia

\*\*\* Prince Mohammad Bin Fahd University, Egaila, Kuwait

## PROFESSIONAL AFFILIATIONS

- Jordan Engineers Association (JEA), Jordan
- American Society of Mechanical Engineers (ASME), USA
- The World Scientific and Engineering Academy and Society (WSEAS), Greece

## REFERENCES

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<p>Prof. Naser Al-Huniti          Department of Mechanical Engineering          Faculty of Engineering          University of Jordan          Amman 11942          Jordan          E-mail: <a href="mailto:alhuniti@ju.edu.jo">alhuniti@ju.edu.jo</a>          Telephone: +962-6-5355000 ext. 22805</p>	<p>Dr. Abdalla Alrashdan          Department of Industrial Engineering          College of Engineering          Alfaisal University          Riyadh 11533          Saudi Arabia          E-mail: <a href="mailto:aalrshdan@alfaisal.edu">aalrshdan@alfaisal.edu</a>          Telephone: +966-11-215-7777</p>
<p>Dr. Bayram Alakus          Department of Mechanical Engineering          College of Engineering          Dumlupınar University          Kutahya 43100          Turkey          E-mail: <a href="mailto:bayram.alakus@dpu.edu.tr">bayram.alakus@dpu.edu.tr</a>          Phone: +90 (274) 265 20 31 ext. 4109</p>	<p>Dr. Fikri Dweiri          PhD in Engineering Management          College of Engineering          University of Sharjah          Sharjah,          United Arab Emirates          E-mail: <a href="mailto:fdweiri@sharjah.ac.ae">fdweiri@sharjah.ac.ae</a>          Phone: +971-6- 505 3909</p>