

Mohammad Ahmed Al Zubi, Ph.D.

Associate Professor.

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Personal Information:

Nationality: Jordanian.

Gender: Male.

Education:

- Ph.D. in Mechanical Engineering from Wayne State University (WSU), Detroit, M I, USA (2009-2012). GPA of (3.96/4.0), Dissertation title: “Investigation and Improvement of Noise, Vibration, and Harshness (NVH) properties of Automotive Panels”.
- M.Sc. in Industrial Automation Engineering from Yarmouk University, JORDAN, (2003-2006). GPA of (88.5/100), Thesis Title: “Automated System for Water Pumping Using Wind – Photovoltaic Hybrid System”.
- B.Sc. in Mechanical Engineering (Thermal Power) from M u’tah University, JORDAN, (1990-1994). GPA of (73.5/100), Project title: “Fluid Flow Effect on Crystallization process in the Dead Sea”.

Research interests:

- Industrial noise control.
- Mechanics of structural composites
- Vibro-acoustics and other non-destructive methods for characterization of composites.
- Modal Analysis of structures.
- Combustion and emission
- Wind and Photovoltaic Systems

Scholarship and Awards:

- Teaching assistantship for the Ph.D. program, funded by College of Engineering (WSU), (2010-2012).
- Outstanding teaching assistant award, Wayne State University, 2012.

Professional experience:

- Current (Vice dean for academic research and higher education, since Sep-2017 up to Sep 2019)
- (Since Sep-2012): Assistant Professor at the Mechanical Engineering Department of Tafila Technical University, Tafila, Jordan. Currently teaching the following courses:
 1. Statics
 2. Dynamics
 3. Strength of Materials
 4. Strength of Materials Lab
 5. Fluid Mechanics
 6. Thermodynamics
 7. Heat Transfer
 8. Internal Combustion Engines
 9. Internal Combustion Engines Lab
 10. Automotive Engineering
 11. Automotive Engineering Lab
 12. Automotive Fuels and Emissions
 13. Fuel and Combustion
 14. HVAC
 15. Energy Conversion
 16. Mechanical Vibration
 18. Material science
- Aug-2010 to May-2012: Graduate Teaching Assistant at the Mechanical Engineering Department, Wayne State University, Detroit, MI, USA. Teaching the course of BE 1200 (Basic Engineering), for the undergrad level. Also working in the NVH lab under supervision of Prof. Ayorinde.
- Sep- 2009 – May, 2010: Teaching Assistant for thermodynamics at the Mechanical Engineering Department of WSU supervised by Professor Singh. It includes grading and tutoring the undergrad students
- August, 2008 – August, 2009: Instructor at the Mechanical Engineering Department of Tafila Tech University (TTU) .Teaching several courses in mechanical and automotive engineering in the mechanical engineering department/Automotive and Thermal.
- 2004 – Aug 2008: Royal Jordanian Air force Air base, electromechanical staff first engineer Lead a team of engineers and maintenance technicians those are responsible for maintenance and operation of all electromechanical equipment in the base.

- 2000– 2004: Royal Jordanian Air force. Maintenance Engineer, lead a team of technicians that is responsible for maintenance and running of all types of pumps and heavy duty trucks in the base. Also I worked as a quality control officer.
- 1998–2000 Royal Jordanian Air force. Power house Maintenance Engineer, maintenance and overhauls of Caterpillar & Mirrlees engines.
- 1995–1998 Royal Jordanian Air force. Military vehicles rebuild project engineer, rebuilding of most military old vehicles. Lead a team of technicians that is responsible for maintenance and running of all vehicles in the base. Quality and material control officer.
- 1994 – 1995 Royal Jordanian Air force RJAF Main workshop .Maintenance Engineer Diesel engine Repair and overhaul workshop engineer.

Publications:

- 1- **Mohammad A. AL Zubi**, Raed Kalalkeh. Economical and Environmental impact of the Integrating Wind Turbines to Diesel Generators Operating at One of the Royal Jordanian Force Site. In proceedings of the Global Conference on Renewable Energy Approaches for Desert Regions [GCREADER] , 18-22 September, 2006, Amman, Jordan.
- 2- **Mohammad Al-Zubi**, Emmanuel Ayorinde, Gary Witus, Akif Dundar. Investigation of layered and periodic pattern material structures for automotive vibro-acoustic abatement. 2011 ASME International Mechanical Engineering Congress and Exposition Denver, Colorado, November 11 -17, 2011. *Symposium 12-22 Materials & Meta-Materials at Varying Length Scales and Frequency*, Paper No. IMECE2011-64572.
- 3- Emmanuel O. Ayorinde, **Mohammad Al- Zubi**, Gary Witus and Akif Dundar. Acoustic emission studies of periodic material structures (Technical presentation). 2011 ASME International Mechanical Engineering Congress and Exposition Denver, Colorado, November 11-17, 2011.
- 4- **Mohammad Al- Zubi**, Akif Dundar ,Emmanuel O. Ayorinde, , and Gary Witus . Acoustic and vibration responses of lexan plate constructions. Proceedings of the ASME 2012 International Mechanical Engineering Congress & Exposition IMECE2012 November 9-15, 2012, Houston, Texas, USA. Paper number, IMECE2012-88721.
- 5- Emmanuel O. Ayorinde, **Mohammad Al- Zubi**, Akif Dundar, and Gary Witus Experimental and numerical analysis of membrane-patterned meta-materials. Proceedings of the ASME 2012

International Mechanical Engineering Congress & Exposition IMECE2012 November 9-15, 2012, Houston, Texas, USA. Paper number, IMECE2012-88752.

- 6- **Mohammad AL Zubi**, Trilochan Singh, and Hisham AL-Salem. Economical impact of using wind/photovoltaic hybrid systems on energy sector in Jordan. Proceedings of the 2012 20th International Conference on Nuclear Engineering collocated with the ASME 2012 Power Conference ICONE20- POWER2012 July 30 - August 3, 2012, Anaheim, California, USA, paper number, ICONE20POWER2012-55151.
- 7- **Zubi, M.**, Ayorinde, E., Witus, G., Dunder, M., Warriach, M., and Murty, Y, Vibro-Acoustic Characterization and Optimization of Periodic Cellular Material Structures (PCMS) for NVH Applications. Journal of Materials Science Research; Vol. 2, No. 4; 2013.ISSN 1927-0585 E-ISSN 1927-0593
- 8- **Mohammad Al- Zubi**, Emmanuel Ayorinde, Gary Witus, Mehmet Dunder, Manjinder Warriach, Yellapu Murty , "Sound and Vibration Considerations of Some Materials for Automotive Engineering Applications, American Journal of Applied Sciences 11 (10): 1784-1797, 2014, ISSN: 1546-9239
- 9- Ali Alahmer, Wael Adaileh, **Mohammad Al Zubi**. Monitoring of a Spark Ignition Engine Malfunctions Using Acoustic Signal Technique. International Journal of Vehicle Noise and Vibration Int. J. of Thermal & Environmental Engineering Volume 6, No. 2 (2013) 75-81.
- 10- Ali Alahmer, Mohammed Omar, **Mohammed Al Zubi**. Demonstrating of a Standing Wave Thermoacoustic Refrigerator. Int. J. of Thermal & Environmental Engineering Volume 6, No. 2 (2013) 75-81
- 11- Emmanuel Ayorinde, **Mohammad Al- Zubi**, Mohammad F. Mohammad, Akif Dunder, "Investigation of some circular membrane-patch acoustic meta-materials," Paper IMECE2013-66720, Nov 15-21, 2013, San Diego, California, USA.
- 12- Emmanuel Ayorinde, **Mohammad Al- Zubi**, Feizhong Deng and Xin Wu, "Acoustic emission monitoring of changes in shape memory polymer under structural test,Paper No NC13-169, pp 743-750, National conference on noise control engineering 2013 (Noise-Con 13), August 26-28 , Denver, Colorado, USA.
- 13- **Mohammad Al Zubi**, Ayman Mansour. Monitoring of a Spark Ignition Engine Malfunctions Using Acoustic Signal Technique. IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE) e-ISSN: 2278-1684,p- ISSN: 2320-334X, Volume 10, Issue 4 (Nov. - Dec. 2013), PP 17-23.
- 14- **Mohammad Al Zubi**, Ahmad Jaffreh, Naeem Odat. Multi Renewable Power Source System Based on MultiStage Fuzzy Technique. 2015 International Conference on Sustainable Mobility Applications, Renewables and Technology (SMART) . Kuwait 23-25 November 2015.

- 15- Emmanuel Ayorinde, **Mohammad Al- Zubi**, Akif Dunder . “Acoustic Characterization of Plate-Based Metamaterials”. 2015 ASME International Mechanical Engineering Congress and Exposition. Houston, Texas, November 2015. IMECE2015-53770.
16. **Mohamamd Al Zubi**, Analytical and Numerical Simulation of Dynamic Indentation for Different Indenter Shapes, journal of Applied Mechanical Engineering, Volume 6 • Issue 5, 2017
- 17- Akif Dunder , Emmanuel Ayorinde, **Mohammad Al-Zubi**. “Determination of Impact Behavior of ABS from Acoustic Emission, Ultrasound and Optics”. 2015 ASME International Mechanical Engineering Congress and Exposition. Houston, Texas, November 2015. IMECE2015-52948.
- 18- **M. Al Zubi**, “Measurement of Sound Pressure Levels in Anechoic Chamber and a Noisy Environment Experimentally”, Open Journal of Acoustics (OJA). (Open Journal of Acoustics, vol 8, 2018, pp (13-22)
- 19- **M. Al Zubi**, “An Experimental Method to Determine the Cut-Off Frequency of an Acoustical Free Field in a Non-Ideal Environment” Open Journal of Acoustics (OJA) (2018, vol 8, pp(1-11).
- 20- **M. Al Zubi**, “MHD Heat and Mass Transfer of an Oscillatory Flow over a Vertical Permeable Plate in a Porous Medium with Chemical Reaction”. Modern Mechanical Engineering, 2018, vol 8, pp (179-191).
- 21- Maen Al Rashdan, **M. Al Zubi**, Mohammad Okour, “Effect of Using New Technology Vehicles on the World’s Environment and Petroleum Resources” , Journal of Ecological Engineering Vol. 20(1), 2019. **Published online 01-11-2018**

Professional Societies and membership:

- Society of Automotive Engineers (SAE).
- American Society of Mechanical Engineers (ASME)
- Co-Chair for the ASME Power Conference (Wind energy session). Jordan Engineer association
- National Society of Professional Engineers
- Golden Key International Honor Society
- Tau Beta Pi(TBP),Michigan Epsilon
- ESFB ASME, Wayne State University
- Institute of Noise Control Engineering of USA(Member)

Summary of qualifications:

- 6/12/1995-20/12/1995, Royal Jordanian Air Force (RJAF), Amman, Good Training Skills.
- 14/12/1996-25/12/1996 RJAF Computer center, Amman, Introduction to Microsoft Windows.
- 21/6/1997-18/7/1997 French Culture Counsel, Amman ,French Language Course.
- 15/10/1997-24/12/1997 Air Force Headquarter, Amman ,English Language Course.
- 5/9/1998-23/9/1998 RJAF Computer center, Amman, PC Applications & Microsoft office.
- 25/7/1999-4/8/1999 Mitsubishi Co, Amman, Maintenance course, (Mitsubishi L200 Traffics).
- 8/2/2001-24/2/2001 RJAF Computer center, Amman, Microsoft Access.
- 25/2/2001-1/3/2001 Mitsubishi Co, Amman, Mitsubishi Lancer Car. Systems& Maintenance.
- 11/3/2002-15/3/2002 Toyota Co ,Amman, Maintenance course (Toyota coaster buses).
- 30/3/2003-7/4/2003 Airo Company, Milano, Italy, Airo Forklifts maintenance course
- 25/9/2005-29/9/2005 Ministry of Environment, Amman, Preparation of Environmental Impact Assessment Report.
- 11/5/2006-15/5/2006 Harfard Co for technology, Amman ,Pumps maintenance and troubleshooting course.
- 6/8/2007- 20/8/2007, Pakistan air force, Karachi, Technical investigation course
- 19/4/2011 Bruel and Kjaer Detroit, USA, Fundamentals of Acoustics.
- 20/4/2011 Bruel and Kjaer Detroit, USA , Fundamentals of Vibration .

Technical Skills:

- Excellent experimental research experience. Preparing and conducted several experiments and tests in multiple areas, including but not limited to: modal analysis, accelerometer calibration, impedance tube test, engine calibration and maintenance.
- Very good skills in Matlab and Simulink.

- Excellent knowledge in combustion engines.
- Excellent knowledge in microphone calibration for acoustic applications.
- Excellent communication skills, I prefer teamwork atmospheres.
- Wide knowledge of modern automotive technologies.
- Excellent knowledge in finite element simulation using Hypermesh including, Optistruct, Nastran, and Abaqus as solvers.

References:

1. Professor Emmanul O. Ayorinde, Mechanical Engineering Department, Wayne State University, Detroit, MI, Email: ayorinde@eng.wayne.edu.
2. Professor Trilochan Singh, Interim Department Chair, Graduate Advisor, Mechanical Engineering Department, Detroit, MI Email: tsing@eng.wayne.edu