

Curriculum Vitae

Bashar Rafee Qawasmeh

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Education

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- Doctor of philosophy (Ph.D.) in Mechanical Engineering, New Mexico State University (NMSU), Las Cruces, New Mexico, USA (May 2012)
 - Master of science (M.S.) in Mechanical Engineering, New Mexico State University (NMSU), Las Cruces, New Mexico, USA (August 2008)
 - Master of science (M.S.) in Mechanical Engineering, Jordan University of Science and Technology (JUST), Irbid, Jordan (June 2005)
 - Bachelor of science (B.S.) in Mechanical Engineering (Mechatronics), Jordan University of Science and Technology (JUST), Irbid, Jordan (September 2002)
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Professional Experience

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- Associate Professor, Department of Mechanical Engineering, University of Jordan (UJ), Jordan, Spring 2019 – present
 - ISO 9001:2015-Quality Management Systems Auditor/Lead Auditor
 - Head of Accreditation and Ranking Department at Accreditation and Quality Assurance Center, University of Jordan (UJ), Jordan, 2021
 - Assistant Professor, Department of Mechanical Engineering, University of Jordan (UJ), Jordan, Spring 2015 – Fall 2018
 - Research Assistant Professor, Department of Mechanical and Aerospace Engineering, (NMSU), USA, Summer 2014 – Fall 2014
 - College Assistant Professor, Department of Mechanical and Aerospace Engineering, (NMSU), USA, Fall 2012 – Spring 2014
 - Instructor, Department of Mechanical and Aerospace Engineering, (NMSU), USA, Spring 2010 - Spring 2012
 - Research Assistant, Department of Mechanical and Aerospace Engineering, (NMSU), USA, Fall 2007 - Spring 2012
 - Teaching Assistant, Department of Mechanical and Aerospace Engineering, (NMSU), USA, Spring 2007
 - Instructor (Thermal-Power stream), Al-Quds College, Amman, Jordan, 2006

- Research Assistant/ Teaching Assistant, Department of Mechanical Engineering, (JUST), Jordan, Spring 2003-2006
- Training Student, Jordan Air Maintenance Company (Joramco), Amman, Jordan, Summer 2002

Professional Committees and Workshops (Trainings)

Committees for Jordan Standards and Metrology Organization -JSMO

- Chair of the Valves sector technical permanent committee, 2018-2022
- Member of the Occupational Health and Safety (OH&S) permanent committee, 2018- 2019

Committees for the Accreditation & Quality Assurance Commission for Higher Education Institutions – AQACHEI

- Member of the accreditation committee for the Arab community university college Fall 2020

Professional Workshops (Trainings)

- SPARK Workshop “Enhancing Student Work-Ready Skills” TOT, UOJ, Amman, Jordan, 25-27 October 2021
- ISO 9001:2015-Quality Management Systems Auditor/Lead Auditor Training Course, Amman-Jordan, 16-20 May 2021, Examination percentage is 91%, Excellent
- Capacity Building in Higher Education Workshop TOT, Porto, Portugal, 14-16 November 2019
- DAAD workshop “C-NEW”, TUHH, Hamburg, Germany, 10th – 12th September 2019
<http://sites.ju.edu.jo/en/cnew/Lists/PoolOfExperts/List.aspx>
- HEBA Train-the-Trainers-Workshop II (Solar Energy in Buildings and HVAC), Innsbruck University, Faculty of Technical Sciences, Innsbruck, Austria, 11th - 15th of March 2019
- Zotero, Theory and Practice, The University of Jordan, Amman, Jordan, November 2018
- Smart Control Systems for Energy Management, New Models for Energy Education and Innovation Workshop, Lisbon, Portugal, May 2018
- PV System Designer and Installer Workshop, Nicosia, Cyprus, March 2017
- Middle East and North Africa - Sustainable Electricity Trajectories (MENA Select Workshop), Amman, Jordan, November 2016
- Renewable Energy Workshop and the exhibition, Jordan Engineers Association (JEA), Amman, Jordan, March 2015

Research Interests

- Fluid Mechanics, Computational Fluid Dynamics (CFD), Flow Control, Fluid-Structure Interaction, Heat Transfer, Porous media, Renewable Energy, Energy Harvesting, Combustion, Model Reduction

Journal Publications and Peer-reviewed Conference Articles

- RM Arabyat, **B. R. Qawasmeh**, SI Al-Azzam, MB Nusair, KH Alzoubi, Faculty Members' Perceptions and Attitudes Towards Anti-Plagiarism Detection Tools: Applying the Theory of Planned Behavior, *Journal of Empirical Research on Human Research Ethics*, doi: 10.1177/15562646221078655, Vol. 17 (3), pp. 275-283, 2022
- M. Alrbai, J. Enizat, H. Hayajneh, **B. R. Qawasmeh**, and S. Al-Dahidi, Energy and exergy analysis of a novel humidification-dehumidification desalination system with fogging technique, *Desalination*, doi: 10.1016/j.desal.2021.115421, Vol. 522, 2022
- **B. R. Qawasmeh**, H. Duwairi, and M. Alrbai, Non-Darcian Forced Convection Heat Transfer of Williamson Fluid in Porous Media, *J. of Porous Media*, doi:10.1615/JPorMedia.2021025540, Vol. 24 (8), pp. 23-35, 2021
- Mohammad Alrbai, Sameer Al-Dahidi, **B. R. Qawasmeh**, and Jamil Al Asfar, Combustion characteristics of Biogas fuel using particularly Simplified reaction mechanism for HCCI ignition engines, *Journal of Energy Engineering*, doi:10.1061/(ASCE)EY.1943-7897.0000766, Vol. 147 (3), 2021
- Jamil Al Asfar, Ahmad AlShwawra, Nabeel Abu Shaban, Mohammad Alrbai, **Bashar R. Qawasmeh**, Ahmad Sakhrieh, Mohammad A. Hamdan, Omar Odeh, Thermodynamic Analysis of a Biomass-Fired Lab-Scale Power Plant, *Energy*, DOI:10.1016/j.energy.2019.116843, 2020
- M. Alrbai, **B. R. Qawasmeh**, S. Al-Dahidi, and O. Ayadi, Influence of hydrogen as a fuel additive on combustion and emissions characteristics of a free piston engine, *Thermal Science*, DOI:10.2298/TSCI181211071A, 2019
- **B. R. Qawasmeh**, M. Alrbai, and S. Al-Dahidi, Forced convection heat transfer of Casson fluid in non-Darcy porous media, *Adv. Mech. Eng.*, Vol. 11(1) 1-10; DOI: 10.1177/1687814018819906, 2019
- M. S. Sari, M. Alrbai and **B. R. Qawasmeh**, Free vibration characteristics of functionally graded Mindlin nanoplates resting on variable elastic foundations using the nonlocal elasticity theory, *Adv. Mech. Eng.*, Vol. 10(12); DOI: 10.1177/1687814018813458, 2018
- S. Al-Dahidi, O. Ayadi, J. Adeeb, M. Alrbai and **B. R. Qawasmeh**, Extreme Learning Machines for Solar Photovoltaic Power Predictions, *Energies*, 11, 2725; doi:10.3390/en11102725, 2018
- M. Alrbai and **B. R. Qawasmeh**, Evaluating the in-cylinder gas mixture homogeneity in natural gas HCCI free piston engine under different engine parameters using 3D-CFD analysis, *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 40(9): 1097-1113; DOI: 10.1080/15567036.2018.1469694, 2018
- M. Alrbai, **B. R. Qawasmeh**, Z. Al-Hamamre, M. S. Sari and Y. Taamneh, Impact of Exhaust Gas Recirculation on Performance and Emissions of Free-Piston Electrical Generator Fueled by DME, *J. Energy Eng.*, 144 (3) ; DOI: 10.1061/(ASCE)EY.1943-7897.0000542, 2018

- **B. R. Qawasmeh**, A. Al-Salaymeh, A. Swaity, A. Mosleh and S. Boshmaf, Investigation of Performance Characteristics of Hybrid Cars, *Int. J. of Thermal & Environmental Engineering* Volume 14, No. 1: 59-69; DOI: 10.5383/ijtee.14.01.008, 2017
- **B. R. Qawasmeh**, A. Al-Salaymeh, Ma'en S. Sari, Nadeen Elian and Nadeen Zahran, Energy Rating for Residential Buildings in Amman, *Int. J. of Thermal & Environmental Engineering* Volume 14, No. 2: 109-118; DOI: 10.5383/ijtee.14.02.004, 2017
- M. S. Sari, and **B. R. Qawasmeh**, Free and Forced Vibration Analysis of Non-local Euler-Bernoulli Beam Resting on Nonlinear Foundation, *Proceedings of the ASME 2015 Conference on Smart Materials, Adaptive Structures and Intelligent Systems SMASIS2015-8882*, Colorado Springs, CO, USA, 2015
- **B. R. Qawasmeh**, and M. Wei, Low-dimensional models for compressible temporally-developing shear layers, *Journal of Fluid Mechanics*, Vol. 731, pp. 364–393, 2013
- M. Wei, **B. R. Qawasmeh**, M. Barone, B. G. van Bloemen Waanders, and L. Zhou, Low-dimensional model of spatial shear layers, *Physics of Fluids*, Vol. 24, No. 014108, doi: 10.1063/1.3678016, 2012
- M. Wei, **B. R. Qawasmeh**, M. Barone, and B. G. van Bloemen Waanders, Low-dimensional modeling for spatially developing free shear layers, *AIAA paper 2009-363*, Orlando, FL, 2009

Courses Taught

Undergraduate:

University of Jordan (UJ), Jordan

- Dynamics, Numerical Methods, Thermodynamics I, Fluid Mechanics I, Fluid Mechanics II, Heat Transfer I, Heat Transfer II, Air Conditioning I, Design of Sanitary Systems, Thermal and Fluid Sciences, Lab. of Thermal and Fluid Sciences, Lab. of Fluid Mechanics, Applications in Mechanical Design, Lab. of Engineering Measurements

New Mexico State University (NMSU), USA

- Engineering Analysis I, Vibrations, Intermediate Dynamics, Fluid Mechanics, Heat Transfer, Flight Dynamics and Controls, Aero-Fluids Laboratory

Graduate:

University of Jordan (UJ), Jordan

- Advanced Fluid Mechanics, Advanced Numerical Analysis, Scientific Research Methodology

New Mexico State University (NMSU), USA

- Advanced Dynamics

Skills

- Use of different E-learning platforms: Moodle, Microsoft Teams and Zoom
- Familiar with Linux and Windows operational systems
- Skilled in Microsoft office applications, Latex, and Tecplot
- Good Experience in FORTRAN, MATLAB, ANSYS, AutoCAD, Mechanical Desktop, and Mathcad

Selected Talks, MS. Thesis and PhD Dissertation

- Ph.D. Dissertation, B. R. Qawasmeh, Extreme model reduction of shear layers, (NMSU), USA, May, 2012
- B. R. Qawasmeh, A. Al-Salaymeh and Ma'een S. Sari, Experimental investigation of hybrid Pv-wind systems for electrical production in Jordan, GCREEDER 2016 Conference, Amman, Jordan, 2016
- B. R. Qawasmeh, and M. Wei, Extreme model reduction for free shear layers, Southwest Regional Technology Symposium, Las Cruces, NM, USA, April 21st, 2011
- B. R. Qawasmeh, and M. Wei, A least order model for temporally-developing compressible shear layers, *Bulletin of the American Physical Society*, Vol. 55, No. 16, Long Beach, CA, USA, 2010
- B. R. Qawasmeh, and M. Wei, Mode competition in a low-dimensional model of shear layers, Southwest Regional Technology Symposium, Las Cruces, NM, USA, April 15th, 2010
- B. R. Qawasmeh, and M. Wei, Low-dimensional modeling of shear layers, *SIAM* conference on Applications of Dynamical Systems, Snowbird, UT, USA, May, 2009
- B. R. Qawasmeh, and M. Wei, Modeling free shear layers in a symmetry-reduced space, Southwest Regional Technology Symposium, Las Cruces, NM, USA, April 16th, 2009
- B. R. Qawasmeh, and M. Wei, Projection of spatial shear layers in a symmetry-reduced space, *Bulletin of the American Physical Society*, Vol. 53, No. 15, San Antonio, TX, USA, 2008
- B. R. Qawasmeh, Numerical Methods in fluid mechanics' applications, Jordanian-German Winter Academy, Amman, Jordan, February(4th-11th), 2006
- MS. Thesis, B. R. Qawasmeh, Natural Convection Heat Transfer from a Horizontal Cylindrical Annulus Partially Filled with Angularly Dispersed Porous Medium, Mechanical Engineering Department, (JUST), Jordan, June, 2005

Funded Projects

- Erasmus+ "Vocational Training Diploma on Electrical and Hybrid Vehicles/ ECO-CAR", 2021-2024, Research Participant
- Erasmus+ "High Level Renewable And Energy Efficiency Master Courses (HEBA)", 2017-2020, Research Participant
- Erasmus+ "Development of Environmental Engineering and injection of change concept for Undergraduate curriculum: EU experience for Jordan and Syria (EGREEN)", 2016-2019, Research Participant
- "Comprehensive Reduced-Order Modeling and Validation for Loads and Flight Stability of a Flapping Wing" (PI), Army Research Lab (ARL) – Micro Autonomous Systems and Technology (MAST) CTA, 2013 – 2015, Research Assistant
- "Flapping and Twisting Aeroelastic Wings for Propulsion" (PI), Army Research Lab (ARL) – Army High Performance Computing Research Center (AHPCRC), 2007 – 2012, Research Assistant
- "Effects to Reduced-Order Modeling of Shear Layers: Boundary Conditions, Compressibility, and External Forcing" (PI), Sandia National Laboratories, 2008 – 2009, Research Assistant
- "Reduced-Order Modeling of Shear Layers" (PI), Sandia National Laboratories, 2007 – 2008, Research Assistant

Awards and Scientific Societies

- Erasmus+ Teaching Mobility - Sabanci University, Istanbul-Turkey, June 2022

- Jordanian Engineers Association (JEA) member 2002-present
- NMSU Graduate Conference Travel Award (2010)
- American Physical Society (APS) Student Travel Award (2008)
- American Physical Society (APS) member (2008-2010)
- Society for Industrial and Applied Mathematics (SIAM) member

Professional Services:

Paper referee

- Waves in Random and Complex Media
- Heat Transfer-Wiley
- Journal of King Saud University - Engineering Sciences
- Aerospace Science and Technology
- Brazilian Journal of Physics
- Energies
- Ain Shams Engineering Journal (ASEJ)
- International Journal of Engineering Systems Modelling and Simulation (IJESMS)
- International Journal of Numerical Methods for Heat and Fluid Flow
- International Journal of Thermal and Environmental Engineering (IJTEE)
- Journal of King Saud University - Engineering Sciences (JKSUES)
- Papers for academic conferences AIAA
- Papers for academic conferences GCREEDER
- Papers for academic conferences JIMEC
- Papers of Thermal and Fluids Engineering Conference
- Waves in Random and Complex Media

Conferences

- The 2nd International Conference on Industrial, Systems and Manufacturing Engineering (ISME'19), Amman, Jordan, 11-12 November, 2019. **Participant**
- The National Conference on "Water Energy Nexus", November 4-5, 2019, Dead Sea-Jordan. **Participant**
- Global Conference on Renewables and Energy Efficiency for Desert Regions (GCREEDER 2016)- **Organizing committee member**
- Global Conference on Renewables and Energy Efficiency for Desert Regions (GCREEDER 2018)- **Organizing and scientific committees member**

Supervising and Co- Supervising Graduate Students

- MS student: Atika Hiasat, Fall 2020
- MS student: Jamil Al-Enizat, Fall 2020
- MS student: Abeer Jbour, Fall 2018
- MS student: Thekra Kasasbeh, Summer 2018

Committee Member for Graduate Students

New Mexico State University (NMSU), USA

- MS student: John Chambles, Spring 2014
- MS student: Efrain Garcia, Spring 2014
- MS student: Shawna Libeau, Fall 2013

Jordan University of Science and Technology (JUST), Jordan

- MS student: Haneen Qirba', Fall 2021
- MS student: Hani Hinawi, Fall 2020
- MS student: Mohammad Aldalal'ah, Summer 2020
- MS student: Mohammed O. Abu Abbas, Summer 2019
- MS student: Amani A. Wardat, Spring 2019
- MS student: Bara' A. Khaleel, Spring 2016

University of Jordan (UJ), Jordan

- MS student: Sarah Kharabsheh, Summer 2022
- MS student: Naseem Al-Dobosh, Fall 2021
- MS student: Sultan, Fall 2021
- MS student: Razan Al Louzi, Spring 2021
- MS student: Fayez, Fall 2019
- MS student: Walaa Nsour, Summer 2018
- MS student: Hothaiffa Z. Abu-Zahra, Fall 2017
- MS student: Maha M. Al-Hiari, Fall 2017
- MS student: Majdi Al-jarrah, Spring 2017

Academic Activities

- Head of Accreditation Department at Accreditation and Quality Assurance Center, University of Jordan (UJ), Jordan, 2021
- Chair of the department Quality and ABET committee, 2019-2020
- Member of the school of engineering Quality Affairs & Accreditation committee, Fall 2019-present
- Prepared ABET syllabi and flow charts for the courses I taught
- Participated in several committees and active in focus groups for the department
- Participated in community activities and services
- Participated in quality assurance work for the School of Engineering at the University of Jordan
- Supervised many undergraduate senior year projects.
- Supervised ABET lab tours at NMSU
- Supervised IAESTE transfer student Jabed Pasha, Summer 2021