

# Curriculum Vitae

## Bashar Rafee Qawasmeh

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### Education

- 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

- Head of Accreditation and Ranking Department at Accreditation and Quality Assurance Center, University of Jordan (UJ), Jordan, Spring 2021-present  
[http://sites.ju.edu.jo/en/pqmc/Lists/FacultyAdministrativeStaff/School\\_All\\_Staff.aspx](http://sites.ju.edu.jo/en/pqmc/Lists/FacultyAdministrativeStaff/School_All_Staff.aspx)
- Associate Professor, Department of Mechanical Engineering, University of Jordan (UJ), Jordan, Spring 2019 – present
- 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

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## **Professional Committees and Workshops (Trainings)**

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### **Committees for Jordan Standards and Metrology Organization -JSMO**

- Chair of the Valves sector technical permanent committee, Fall 2018-present
- Member of the Occupational Health and Safety (OH&S) permanent committee, Fall 2018-Summer 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)**

- 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

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## **Research Interests**

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

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## Journal Publications and Peer-reviewed Conference Articles

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- **B. R. Qawasmeh**, H. Duwairi, and M. Alrbai, Non-Darcian Forced Convection Heat Transfer of Williamson Fluid in Porous Media, *J. of Porous Media*, accepted, 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 AlShawwra, 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

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## Courses Taught

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### 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

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## Skills

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- 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
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## Selected Talks, MS. Thesis and PhD Dissertation

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- Ph.D. Dissertation, B. R. Qawasmeh, Extreme model reduction of shear layers, (NMSU), USA, May, 2012
  - B. R. Qawasmeh, A. Al-Salaymeh and Ma'en S. Sari, Experimental investigation of hybrid Pv-wind systems for electrical production in Jordan, GREEDER 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 21<sup>st</sup>, 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 15<sup>th</sup>, 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 16<sup>th</sup>, 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(4<sup>th</sup>-11<sup>th</sup>), 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
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## Funded Projects

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- 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 (AHPARC), 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

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## Awards and Scientific Societies

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- 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

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## Professional Services:

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### Paper referee

- 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

### Conferences

- The 2<sup>nd</sup> 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: 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: 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, Spring 2021-present
- 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