

Bashar Khalil Hammad

Professor



- Department of Mechanical and Maintenance Engineering
German Jordanian University
Amman, Jordan
- Department of Hydrogen Technology Engineering
Technical University of Applied Sciences Würzburg-Schweinfurt (THWS)
Hosted program by German Jordanian University
- Department of Advanced Materials Engineering
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<https://www.gnu.edu.jo/content/faculty-members-17023>
<https://www.gnu.edu.jo/content/prof-bashar-k-hammad-20239>

Education

- **Ph.D. in Engineering Mechanics** May 2008
Virginia Polytechnic Institute and State University (Virginia Tech)
Dissertation: "Modeling, Simulation, and Analysis of Micromechanical Filters
Coupled with Capacitive Transducers"
Advisor: Prof. Ali H. Nayfeh
- **M.S. in Mechanical Engineering** December 2003
University of Texas at Arlington
Thesis: "Characterization of smart MEMS pump by applying quasi-static model
based on simulations of membrane and solid-fluid interface of microvalves"
Advisor: Prof. T.C. Yih
- **B.S. in Mechanical Engineering** May 1997
University of Jordan
Graduation Project: "Theoretical Investigation of Solar Air Heaters"
Advisor: Prof. M. Al-Saad

Experience

- **Professor** Fall 2024 to Present
Department of Mechanical and Maintenance Engineering,
German Jordanian University
- **Vice Dean** February 2025 to Present
School of applied Technical Sciences,
German Jordanian University
- **Department Head** Fall 2022 to February 2025
Department of Mechanical and Maintenance Engineering,
German Jordanian University

Updated: 29/09/2025

• Assistant Dean for Accreditation and Quality Affairs School of applied Technical Sciences, German Jordanian University	Spring-Summer 2022
• Associate Professor Department of Mechanical and Maintenance Engineering, German Jordanian University	Fall 2018 to Summer 2024
• Assistant Dean for Quality Affairs School of applied Technical Sciences, German Jordanian University	Fall 2019 to Summer 2020
• Associate Professor Mechatronics Engineering Department, The Hashemite University	Summer 2018
• Assistant Professor Mechatronics Engineering Department, The Hashemite University	Fall 08 to Summer 2018
• Director Center of Academic Quality Assurance, The Hashemite University	Spring 11 to Spring 16
• Assistant Dean of Engineering for Student Affairs and Training The Hashemite University	Fall 09 to Spring 10
• Graduate Research Assistant Nonlinear Dynamics Lab, Virginia Tech	Fall 04 to Spring 08
• Graduate Teaching Assistant Engineering Science and Mechanics Department, Virginia Tech	Spring 07
• Teaching Instructor Physics Department, Virginia Tech	Summer I & II 06
• Graduate Teaching Assistant Mechanical Engineering Department, University of Texas at Arlington	Fall 03
• Graduate Research Assistant Automation & Robotics Research Institute, University of Texas at Arlington	Summer 03
• Application Engineer Technical Support Department, Petra Engineering Industrial Co., Jordan	1997 - 2002
• Internship Electrical and Refrigeration Departments, Petra Engineering Industrial Co., Jordan	Summer 1996

Memberships

- ASME (American Society of Mechanical Engineers)
- ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers)
- IEEE (Institute of Electrical and Electronics Engineers)

- JEA (Jordanian Engineers Association)

Publications: Journals

- 1) Karam Alhroub, **Bashar Hammad**, Ahmad Kattan, Charlotte Pfau, Christian Hagendorf and Marko Turek, "Electrical and optical characterizations and modelling of bifacial photovoltaic minimodules integrated into solar air heaters," **Solar Energy Materials and Solar Cells**, Volume 286, Paper ID: 113566, 2025.
- 2) **Bashar Hammad**, Mohammed Baker, and Mohammed Abdulhameed, "Modeling and sensitivity analysis of the thermal behavior of solar air heaters for various selectivity, nature, and glazing", **International Journal of Ambient Energy**.
- 3) Sameer Al-Dahidi, **Bashar Hammad**, Mohammad Alrbai, Mohammad Al-Abed, "A novel dynamic/adaptive K-nearest neighbor model for the prediction of solar photovoltaic systems' performance", **Results in Engineering**, Volume 22, Paper ID 102141, 2024.
- 4) **Bashar Hammad**, Sameer Al-Dahidi, Yousef Aldahouk, Daniel Majrouh and Suhib Al-Remawi, "Technical, Economic, and Environmental Investigation of Pumped Hydroelectric Energy Storage Integrated with Photovoltaic Systems in Jordan", **Sustainability**, Volume 16(4), Paper ID 1357, 2024.
- 5) Jaafar Alghazo, Ghazanfar Latif, **Bashar Hammad**, Mohammad Al-Abed, Fadi Sibai, Wael Al-Kouz, "Prediction of the Performance of a Sun Tracking Photovoltaic System using different Artificial Intelligence Techniques: Case Study in Zarqa, Jordan", **International Journal of Computing and Digital Systems**, Volume 14, No. 1, 2023.
- 6) **Bashar Hammad**, Hichem Abdelmoula, Abdessattar Abdelkefi, "Development and applicability of low-fidelity solutions for electret-based microcantilever energy harvesters", **European Journal of Mechanics - A/Solids**, Volume 99, Paper ID 104924, May–June 2023.
- 7) Ma'en Sari, Sameer Al-Dahidi, and **Bashar Hammad**, "Free and forced nonlinear vibrations of Bi-Directional functionally graded Euler–Bernoulli porous beams," **Journal of Vibration and Control**, Volume 29, Issue 11-12, pages 2696-2711, 2023.
- 8) Muna Hindiye, Mustafa Jaradat, Aiman Albatayneh, Batool Alabdellat, Yazan Al-Mitwali, **Bashar Hammad**, "Sustainable Green University: Waste Auditing, German Jordanian University as a Case Study," **Frontiers in Built Environment**, Volume 8, Paper ID 884656, 2022.
- 9) Salem Nijmeh, **Bashar Hammad**, Mohammad Al-Abed, Riad Bani-Khalid, "A Technical and Economic Study of a Photovoltaic–phase Change Material (PV-PCM) System in Jordan," **Jordan Journal of Mechanical and Industrial Engineering**, Volume 14, Number 4, pp. 371-379, 2020.
- 10) Issa Etier, Mohamad Nehad Al-labadi, Ali Jawarneh, **Bashar Hammad**, Nithiyananthan Kannan, "Real Time Analysis Model of Single Action Tracker, Dual Axis Solar Tracker and Fixed Mounting of the Photovoltaic System", **Journal of Green Engineering**, Volume 10, Issue 11, pp. 12439-12455, 2020.
- 11) Mutasem M. Akour and **Bashar K. Hammad**, "Psychometric Properties of an Instrument Developed to Assess Students' Evaluation of Teaching in Higher Education", **Journal of Educational and Psychological Studies**, Volume 14, Issue 4, pp. 656-667, 2020.
- 12) Rafael Pastor, Llanos Tobarra, Antonio Robles-Gómez, Jesús Cano, **Bashar Hammad**, Abdullah Al-Zoubi, Roberto Hernández, Manuel Castro, "Renewable energy remote online laboratories in Jordan universities: Tools for training students in Jordan", **Renewable Energy**, Volume 149, pages 749-759, 2020.
- 13) Adnan Al-Bashir, Mohammad Al-Dweri, Ahmed Al-Ghandoor, **Bashar Hammad**, Wael Al-Kouz. "Analysis of Effects of Solar Irradiance, Cell Temperature and Wind Speed on Photovoltaic Systems Performance", **International Journal of Energy Economics and Policy**, Volume 10, Issue 1, pages 353-359, 2020.
- 14) **Bashar Hammad**, Abdallah Al-Zoubi & Manuel Castro. "Harnessing technology in collaborative renewable energy education", **International Journal of Ambient Energy**, Volume 41, Issue 10, pages 1118-1125, 2020.

- 15) **Bashar Hammad**, Hichem Abdelmoula, Eihab Abdel-Rahman, Abdessattar Abdelkefi. "Nonlinear Analysis and Performance of Electret-Based Microcantilever Energy Harvesters", **Energies**, Volume 12, Issue 22, Paper ID 4249, 2019.
- 16) Abdallah Al-Zoubi, Majed Abu Jaber, Adnan Atoum, **Bashar Hammad**, Mamoun Dmour. "A Model for Jordanian National Qualifications Framework", **Journal of Education and Human Development**, Volume 8, No. 3, pages 101—112, 2019.
- 17) Haneen Hijazi, **Bashar Hammad**, Ahmad Al-Khasawneh. "Modelling and Implementation of Proactive Risk Management in e-Learning Projects: A Step Towards Enhancing Quality of e-Learning", **International Journal of Advanced Computer Science and Applications**, Volume 10, No. 5, pages 235—251, 2019.
- 18) Wael Al-Kouz, Sameer Al-Dahidi, **Bashar Hammad**, Mohammad Al-Abed. "Modeling and analysis framework for investigating the impact of dust and temperature on PV systems' performance and optimum cleaning frequency", **Applied Sciences**, Vol 9, Issue 7, Paper ID 1397, 2019.
- 19) **Bashar Hammad**, Mohammad Al-Abed, Ahmed Al-Ghandoor, Ali Al-Sardeah, Adnan Al-Bashir, "Modeling and Analysis of Dust and Temperature Effects on Photovoltaic Systems' Performance and Optimal Cleaning Frequency: Jordan Case Study", **Renewable and Sustainable Energy Reviews**, Volume 82, pages 2218 – 2234, 2018. **(Best Research Paper awarded by Scientific Research and Innovation Support Fund, Ministry of Higher education and Scientific Research, Jordan, 2019)**
- 20) **Bashar Hammad**, Ali Al-Sardeah, Mohammad Al-Abed, Salem Nijmeh, Ahmed Al-Ghandoor, "Performance and economic comparison of fixed and tracking photovoltaic systems in Jordan", **Renewable and Sustainable Energy Reviews**, Volume 80, pages 827–839, 2017.
- 21) Adnan Atoum, Abdallah Al-Zoubi, Majed Abu Jaber, Mamoun Al-Dmour, and **Bashar Hammad**, "A New Approach for Delivering eLearning Courses in Jordanian Universities," *Advances in Social Sciences Research Journal*, Vol 4, No. 8, pp. 1 – 13, 2017.
- 22) Ahmad Al-Khasawneh and **Bashar K. Hammad**, "Implementation of service learning and civic engagement for students of computer information systems through a course project at the Hashemite University," **Education for Information**, Volume 31, Number 4, pages 181–193, 2015.
- 23) **Bashar K. Hammad**, Rami H. Fouad, Salem D. Nijmeh, Mousa Mohsen, and Asma Tamimi, "Adaptive control of solar tracking system," **IET Science, Measurement & Technology**, Volume 8, Number 6, pages 426–431, 2014.
- 24) **Bashar K. Hammad**, Shaher M. Rababeh, Mohammad A. Al-Abed, and Ahmed M. Al-Ghandoor "Performance Study of On-Grid Thin-Film Photovoltaic Solar Station as a Pilot Project for Architectural Use", **Jordan Journal of Mechanical and Industrial Engineering**, Volume 7, Number 1, pages 1–9, 2013.
- 25) **Bashar K. Hammad**, "Natural Frequencies and Mode Shapes of Mechanically Coupled Microbeam Resonators with an Application to Micromechanical Filters", **Shock and Vibration**, Paper ID 939467, 2014.
- 26) **Bashar K. Hammad**, Ali H. Nayfeh, and Eihab M. Abdel-Rahman, "On the Use of the Subharmonic Resonance as a Method for Filtration", **Journal of Computational Nonlinear Dynamics**, Volume 6, Number 4, Paper ID 041007, 2011.
- 27) Ali H. Nayfeh, **Bashar K. Hammad**, and Muhammad Hajj, "Discretization Effects on Flutter Aspects of Wing/Store Configurations", **Journal of Vibration and Control**, Volume 18, Number 7, pages 1043–1055, 2012.
- 28) **Bashar K. Hammad**, Eihab M. Abdel-Rahman, and Ali H. Nayfeh, "Modeling and analysis of electrostatic MEMS filters", **Nonlinear Dynamics**, Volume 60, Number 3, pages 385–401, 2010.
- 29) Yih TC, CM Wei and **B Hammad**, "Modeling and characterization of a nanoliter drug-delivery MEMS micropump with circular bossed membrane", **Journal of Nanomedicine: Nanotechnology, Biology, and Medicine**, Volume 1 Number 2, pages 164-175, 2005.

Publications: Conferences

- 1) Sameer Al-Dahidi, **Bashar Hammad**, Mohammad Al-Abed, "Sensitivity Analysis in Predicting Photovoltaic Systems Performance Utilizing Random Forest", 12th International Conference on Electrical and Electronics Engineering (ICEEE 2025), Istanbul, Turkey, September 24-26, **2025**.
- 2) Abdallah Zaqout, Tobias Riethmüller, **Bashar Hammad**, "Interoperable connection of robots and camera systems with machines", 12th International Conference on Electrical and Electronics Engineering (ICEEE 2025), Istanbul, Turkey, September 24-26, **2025**.
- 3) Mohammad Al Shimi, **Bashar K. Hammad**, Anas Jadallah, "Hydrogen Generation from Pumped Hydroelectric Energy Storage Integrated with Photovoltaic System: Case Study of Wadi Al Arab", 15th International Renewable Energy Congress (IREC2025), Hammamet, Tunisia, February 2–4, 2025.
- 4) **Bashar K. Hammad**, Mohammad K. Al Shimi, Mohammad A. Al-Abed, "Enhancing the Performance of Solar Air Heaters by Augmenting Emissivity of Absorber Plates", 13th International Conference on Power Science and Engineering (ICPSE 2024), Ankara, Turkey, September 27-29, **2024 (Best Presenter Award)**.
- 5) **Bashar Hammad**, Ahmad N. Kattan, Nidal Y. Abdalla, Mohammad A. Al-Abed, "Experimental Investigation of Solar Air Heaters with Different Absorber Plates", 14th International Renewable Energy Congress (IREC2023), Sousse, Tunisia, December 16–18, **2023 (Best Paper Award in Solar Thermal Energy Track)**.
- 6) **Bashar Hammad**, Mohammed Baker, Mohammed Abdulhameed, "Effect of number of glass covers on performance of flat- and corrugated-plate solar air heaters", 13th International Renewable Energy Congress (IREC2022), Hammamet, Tunisia, December 13–15, **2022**.
- 7) Manuel Castro, Abdallah Al-Zoubi, **Bashar Hammad**, Mamoun Aldmour, "Flipped MOOCs as a pathway towards education 4.0", 2022 IEEE Learning with MOOCs (LWMOOCs), Antigua Guatemala, Guatemala, September 29-30, **2022**.
- 8) **Bashar Hammad**, Abdallah Al-Zoubi, Haneen Hijazi, Ahmad Al-Khasawneh, "Student-Centered Engineering Education: The Renewable Energy Case", IEEE Global Engineering Education Conference (EDUCON), pages 477-486, Porto, Portugal, April 27-30, **2020**.
- 9) **Bashar Hammad**, Ali Nayfeh, "Buckling of Mechanically Coupled Microbeam Resonators," Proceedings of the 5th World Congress on Mechanical, Chemical, and Material Engineering (MCM'19), Lisbon, Portugal, August, **2019**.
- 10) Waleed H. Al-Natsheh, **Bashar K. Hammad** and Mustafa A. Abu Zaid, "Design and Implementation of a Cylindrical Persistence of Vision Display", 6th International Conference on Electrical and Electronics Engineering (ICEEE 2019), Istanbul, Turkey, April 16-17, **2019**.
- 11) Llanos Tobarra, Rafael Pastor, Antonio Robles-Gomez, Jesus Cano, **Bashar Hammad**, Abdullah Al-Zoubi, Roberto Hernandez, Manuel Castro, "Impact of online education in Jordan: results from the MUREE project", IEEE EDUCON2019, Dubai, UAE, April 9-11, **2019**.
- 12) Jacob Cenicerros, Hichem Abdelmoula, **Bashar Hammad**, Abdessattar Abdelkefi, Patricia A. Sullivan, "Nonlinear modeling and performance analysis of electret-based energy harvesters", Proceedings of the ASEE Gulf-Southwest Section Annual Conference, Dallas, TX, USA, **2017**.
- 13) Llanos Tobarra, Salvador Ros, Roberto Hernandez, Rafael Pastor, Manuel Castro, Abdallah AlZoubi, **Bashar K. Hammad**, Mamoun Dmour, A. Robles-Gomez, and A. C. Caminero, "Analysis of Integration of Remote Laboratories for Renewable Energy courses at Jordan Universities", IEEE Frontiers in Education Conference, , EL Paso, TX, USA, October 21 - 24, **2015**.
- 14) Abdallah Al-Zoubi, **Bashar K. Hammad**, Salvador Ros, Llanos Tobarra, Roberto Hernandez, Rafael Pastor, and Manuel Castro, "Remote Laboratories for Renewable Energy Courses at Jordan Universities", IEEE Frontiers in Education Conference, Madrid, Spain, October 22–25, **2014**.

- 15) Nicolas Patrici, Mohammad Mismar, **Bashar K. Hammad**, Khaled M Gharaibeh, Rafael Llavori de Micheo, Nick Harris, "Euro-Mediterranean perspectives on the complex shifts between external and internal QA of teaching and learning, at strategic and practical levels: Enhancing Quality Assurance Management (EQuAM) in Jordanian universities", 9th European Quality Assurance Forum, Barcelona, Spain, November 13-15, **2014**.
- 16) **Bashar K. Hammad**, Eihab M. Abdel-Rahman, and Mohamed A.E. Mahmoud, "Micro Cantilever Electrostatic Energy Harvester", Proceedings of IDETC/CIE 2013, ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, Paper no. DETC2013-13340, Portland, OR, USA, August 4 - 7, **2013**.
- 17) **Bashar K. Hammad**, Randa A. Mahasneh, and Ahmad M. Khasawneh, "A Case Study of Service Learning and Civic Engagement for Mechatronics Engineering Students through a course Project," ISMA 2013 - 9th International Symposium on Mechatronics and its Applications, Amman, Jordan, April 9-11, **2013**.
- 18) Mahmoud, M.A.E.; **Hammad, B.K.**; Abdel-Rahman, E.M.; El-Saadany, E.F.; Mansour, R.R., "Analysis of out-of-plane Micro-Power Generators", IECON 2012 - 38th Annual Conference on IEEE Industrial Electronics Society, pages 930–936, Montral, Canada, 25 - 28 October **2012**.
- 19) **Bashar K. Hammad**, Ali H. Nayfeh, and Eihab M. Abdel-Rahman, "A Study of Subharmonic Excitation of Mechanically Coupled Microbeams for Filtration", Proceedings of ASME International Mechanical Engineering Congress IMECE2008, Paper no. IMECE2008-66728, Boston, Massachusetts, USA, October 31-November 6, **2008**.
- 20) Krishna Vummidi, Eihab M. Abdel-Rahman, **Bashar K. Hammad**, Ali H. Nayfeh, and Sanjay Raman, "Micromechanical Resonators with Near-Linear Response," Proceedings of ASME International Mechanical Engineering Congress IMECE2008, Paper no. IMECE2008-66517, Boston, Massachusetts, USA, October 31-November 6, **2008**.
- 21) Hassen M. Ouakad, Ali H. Nayfeh, Slim Choura, Eihab M. Abdel-Rahman, Fehmi Najar, and **Bashar K. Hammad**, "Nonlinear Feedback Control and Dynamics of an Electrostatically Actuated Microbeam Filter," Proceedings of ASME International Mechanical Engineering Congress IMECE2008, Paper no. IMECE2008-68965, Boston, Massachusetts, USA, October 31-November 6, **2008**.
- 22) Giancarlo G. Bordonaro, Muhammad R. Hajj, Ali H. Nayfeh, **Bashar K. Hammad** and John C. Duke, "Parameters Sensitivities to Damage Initiation in a Beam-Mass System," Proceeding of 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Paper no. AIAA 2008-2165, Schaumburg, IL, USA, April 7-10, **2008**.
- 23) **Bashar K. Hammad**, Eihab M. Abdel-Rahman, and Ali H. Nayfeh, "A Subharmonic Resonance Based MEMS Filter", Proceedings of ASME International Mechanical Engineering Congress, IMECE2007, Paper no. IMECE2007-42201, Seattle, Washington, USA, November 5-10, **2007**.
- 24) **Bashar K. Hammad**, Eihab M. Abdel-Rahman, and Ali H. Nayfeh, "A Discretization Approach to Modeling Capacitive MEMS Filters", Proceedings of ASME International Mechanical Engineering Congress, IMECE2007, Paper no. IMECE2007- 42186, Seattle, Washington, USA, November 5-10, **2007**.
- 25) Haider N. Arafat, Ali H. Nayfeh, and **Bashar K. Hammad**, "Experimental Observations of Nonlinear Non-planar Oscillations of a Cantilever Beam", Proceedings of the ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference IDETC/CIE 2007, Las Vegas, USA, September 4-7, **2007**.
- 26) **Bashar K. Hammad** and Ali H. Nayfeh, "Linear Vibrations of MEMS Filters", Proceedings EMD2007, the 18th Engineering Mechanics Division Conference of ASCE, Blacksburg, Virginia, USA, June 3-6, **2007**.
- 27) **Bashar K. Hammad**, Eihab M. Abdel-Rahman, and Ali H. Nayfeh, "A Novel MEMS RF Filter", Proceedings of IMAC-XXV Conference and Exposition on Structural Dynamics, Orlando, Florida, USA, February 19-22, **2007**,

- 28) **Bashar K. Hammad**, Eihab M. Abdel-Rahman, and Ali H. Nayfeh, "TUNING OF A MEMS RF FILTER," Technical Proceedings of the 2006 NSTI Nanotechnology Conference and Trade Show, Volume 3, pages 345-348, , Boston, Massachusetts, USA, May 7-11, **2006**
- 29) **Bashar K. Hammad**, Eihab M. Abdel-Rahman, and Ali H. Nayfeh, "Characterization of a Tunable MEMS RF Filter," Proceedings of ASME International Mechanical Engineering Congress IMECE2006, Chicago, Illinois, USA, November 5-10, **2006**.
- 30) Eihab M. Abdel-Rahman, **Bashar K. Hammad**, and Ali H. Nayfeh, "SIMULATION OF A MEMS RF FILTER," Proceedings of IDETC/CIE 2005, ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, Long Beach, California, USA, September 24-28, **2005**.
- 31) **Bashar K. Hammad** and T.C. Yih, "Characterization of an Intelligent Micro-Sensor/Pump by Stroke Volume," published in TexMEMS V, May 6th, **2003**.

Master Students

- **Thesis Advisor**, Student: Samah Khalaf, "Sustainable design of building facade in Jordan and its impact on energy demand and daylighting performance", German Jordanian University, Graduation date January **2025** (expected).
- **Thesis Advisor**, Student: Ruba Al-Malahi, "Adaptive façade effect on energy demand, daylighting, glary, and indoor air quality (preliminary)", German Jordanian University, Graduation date August **2025** (expected).
- **Examiner**, Student: Razan Raed Ahmad Al-Mohamad, "Investigating Decarbonizing Desalination Processes using Green Hydrogen", German Jordanian University, January 2025.
- **Examiner**, Student: Faisal Saleh, "Electrochemical Modeling and Evaluation of Hydrogen Fuel Cell," German Jordanian University, January 2025.
- **External Examiner**, Student: Faisal Matar, "Waste Heat Recovery from Industrial Sector: Case Study – Cement Factory", University of Jordan, December **2018**.
- **Thesis Co-Advisor**, Student: Ali Al-Sardeyah, "Performance and Economical Analyses of Grid-Connected Photovoltaic (PV) Tracking Systems in Jordan", The Hashemite University, April **2015**.
- **External Examiner**, Student: Fedaa Abd Elhamid, "Impact pf Passive Techniques on Thermal Behavior of Emergency Shelter", University of Jordan, December **2015**.
- **External Examiner**, Student: Mageda El-Moubarak, "Islanding Detection Methods for Grid-tied Inverters", Princess Sumaya University for Technology, May **2015**.

Graduation Projects (selected)

- Novel Cylindrical POV-Screen (www.youtube.com/watch?v=yqFfEF2JcQo)
- Hydrogen Generation from Pumped Hydroelectric Energy Storage Integrated with Photovoltaic System
- Exploiting the potential and feasibility of hybrid photovoltaic system with pumped hydroelectric energy storage in Jordan
- Performance of PV-Wind Hybrid Power Generation System
- Design, Analysis and Applications of four-bar mechanisms
- Sustainable Green University Case Study (The German Jordanian University)
- Design, Simulation, Manufacturing, Testing of Vertical Axis Wind Turbines (VAWTs)

Presentations

- **Bashar Hammad**, “Student-Centered Engineering Education: The Renewable Energy Case”, E-Learning and Open Education Workshop, German Jordanian University, March 11, 2020.
- **Bashar K. Hammad**, “Design of Students Learning Outcomes,” Higher Education Workshop, The Hashemite University, Jordan, May 30, 2012.
- **Bashar K. Hammad**, “Jordanian Accreditation and Quality Assurance Criteria,” Higher Education Workshop, The Hashemite University, Jordan, (October 6, 2011 & May 24, 2012).
- **Bashar K. Hammad**, Adnan M. A. Mukattash, and Ahmed M. Al-Ghandoor, “Standalone openloop controlled two-axis off-grid photovoltaic solar tracker: design, analysis, and feasibility study,” accepted for publication in Proceedings of Global Conference on Renewables and Energy Efficiency for DEsert Regions (GCREEDER 2011), April 26-28 2011, Amman, Jordan.
- **Bashar K. Hammad** and “Moh’d Sami” Ashhab, “Modeling, Simulation, and Control of a Solar Tracking System,” accepted for publication in Proceedings of Global Conference on Renewables and Energy Efficiency for DEsert Regions (GCREEDER 2011), April 26-28 2011, Amman, Jordan.
- Ali H. Nayfeh, **Bashar K. Hammad**, and Mohammad Hajj, “Flutter Analysis of the Golland+ Wing with Store,” Dynamics and Control Workshop, Amman, Jordan, March 24-29, 2008.
- Ali H. Nayfeh, **Bashar K. Hammad**, and Mohammad Hajj, “Flutter Analysis of the Golland+ Wing with Store,” ESM 100th Anniversary Mechanics Conference, Virginia Tech, Blacksburg, VA, May 29-30, 2008.
- **Bashar K. Hammad**, Eihab M. Abdel-Rahman, and Ali H. Nayfeh, “Exploiting Nonlinear Phenomena in Microelectromechanical Filters for Wireless Communications,” poster presentation, the 23rd Annual Research Symposium, Virginia Tech, March 28th, 2007.
- **Bashar K. Hammad** and T. C. Yih, “Modeling and characterization of a nanoliter drug-delivery MEMS micropump with circular bossed membrane,” oral presentation, Annual Celebration of Excellence by Students ACES, University of Texas at Arlington, Spring 2004.

Workshops/Courses

- **Attendant**, “The Sustainability Summer School – SustainMV 2024,” a project supported by the Ministry of Science, Culture, Federal and European Affairs in Germany, Mecklenburg-Vorpommern (MV: Greifswald, Rostock, Wismar, Stralsund, and Neubrandenburg), September 3-13, **2024**.
- **Attendant**, “Didactic Competences for In-Company Trainers,” within the GIZ project Labour Market Oriented Vocational Education, Higher Education and Training, Amman, Jordan, March 19-22, **2023**.
- **Attendant**, “Grant Proposal Writing Workshop,” German Academic Exchange Service (DAAD), Amman, Jordan, March 15-16, **2023**.
- **Attendant**, “Online and Blended Learning (First level),” German Jordanian University, Fall **2022**.
- **Attendant**, “Preparing Higher Education Quality Reviewers”, Accreditation and Quality Assurance Commission for Higher Education institutions, September **2019**.
- **Attendant**, “PV Systems”, organized by University of Cyprus in the framework of AT-SGIREs (project funded ERASMUS), 4-8 February **2019**.
- **Attendant**, “Education in Arab World Conference” organized by University of Jordan and AlQuds Open University, April **2018**.
- **Attendant**, “Training Quality Assurance” organized by the National Agency for Quality Assessment and Accreditation (ANECA), Madrid, Spain, September 7-8, **2015**.
- **Attendant**, “Training on Internal Quality Assurance Management” organized by Sapienza University of Rome (project funded TEMPUS), June 11-12, **2015**.
- **Attendant**, “External Reviewer Training” organized by the British Council and Accreditation and Quality Assurance Commission for Higher Education institutions, Amman, Jordan, **2014**.

- **Attendant**, “Preparing External Reviewers for Academic Programs Accreditation” organized by Association of Arab Universities, Amman, Jordan, November 2-4, 2013.
- **Attendant**, “Self-Evaluation for Academic Programs” organized by Association of Arab Universities, Amman, Jordan, June 15-16, 2013.
- **Attendant**, “Experts’ Network for Strategic Planning in Higher Education,” Islamic Educational, Scientific and Cultural Organization (ISESCO) & Federation of the Universities of the Islamic World (FUIW), Irbid, Amman, Jordan, October 30 – November 1, **2012**.
- **Attendant**, “How to Qualify for ABET Accreditation,” Arab Organization for Quality Assurance in Education & Association of Arab Universities, Amman, Jordan, November 4 – 5, **2012**.
- **Organizer**, “Higher Education Workshop,” The Hashemite University, Jordan, The Hashemite University, Jordan, (March 27 – 31, **2011**, October 2 – 6, **2011**, & May 27 – 31, **2012**).
- **Co-organizer**, “Student Learning Outcomes: Design and Measures (for Faculties of Humanities and Social Sciences),” EU Tempus activity, The Hashemite University, Jordan, January 29 – 31, **2012**.
- **Co-organizer**, “Student Learning Outcomes: Design and Measures (for Faculties of Engineering and Medical Sciences),” EU Tempus activity, The Hashemite University, Jordan, January 31 – February 2, **2012**.
- **Attendant**, “ISESCO Strategy for developing Higher Education,” Amman, Jordan, October 24 –27, **2011**.
- **Attendant**, “Developing Service-learning and Civic Engagement Partnerships across the Curriculum,” EU funded Tempus project, Lebanon, January 26 – 31, **2011**.
- **Attendant**, “Building Management Systems” organized by the Jordan Engineers Association, October 20 – November 1, **2010**.
- **Attendant**, “Training on Education technology and Evaluation”, organized by the Hashemite University, May 10-14, **2009**.
- **Attendant**, “Design and Selection of A/C units – 32-hour Training Course” organized by Petra Engineering Industries Co., Amman, Jordan, November, **1997**.
- **Attendant**, “Refrigeration / Air-Conditioning – 10-week Training Course” organized by Petra Engineering Industries Co., Amman, Jordan, **1996**.

Teaching Experience

- Statics (ESM 2104 - VT)
- Statics (401211 - HU)
- Transducers and Interfacing (405341 and 110405431 - HU)
- Transducers and Interfacing Lab (405341 - HU)
- Control and Transducers Lab (110405432 -HU)
- Control Systems 1 (4405451 - HU)
- Control Systems 2 (405454 - HU)
- Automatic Control (110405331 – HU)
- Automatic Control Lab (110405332 – HU)
- Dynamics and Vibrations (405211 – HU, TME 214 – GJU)
- Dynamics (MECH0215 – GJU)
- Mechanics of Materials (TME213 – GJU)
- Renewable Energy (TME529 – GJU)
- Advanced Renewable Energy Systems (ENE731 – GJU)
- Heating, Ventilation and Air Conditioning (TME 522 – GJU)
- Thermofluids Lab (TME323 – GJU)
- Mechanical Vibrations lab (MECH0532 - GJU)

- Principles of Renewable Energy Systems (110405549 - HU – Face-to-face)
- Principles of Renewable Energy Systems (110405549 - HU - Online Course)
- Renewable Energy Systems (24571 - PSUT - Blended Learning)
- Special Topics (Building Automation) (4405495 - HU)
- DS301 (Practical Training for Dual-Study Track – GJU)

(VT: Virginia Tech, HU: The Hashemite University, PSUT: Princess Sumaya University for Technology, GJU: German Jordanian University)

Grants

- Experimental investigation of performance of solar air heaters with selective coating and special-designed absorber plates
 - Funded by: Deanship of Scientific Research – German Jordanian University
 - Amount: JD 9,100 (US\$ ≈ 12,853)
 - Duration: 36 months (1/10/2021 to 30/9/2024)
- Standalone Off-Grid Closed-Loop Two-Axis Photovoltaic Solar Tracker: Design, Fabrication, Control, and Comparison.
 - Funded by: King Abdullah II fund for Development (KAJD) & King Abdullah II Design & Development Bureau (KADDB)
 - Amount: JD 3,616 (US\$ ≈ 5,107).
 - Duration: 6 months
- Standalone Off-Grid Open-Loop Two-Axis Photovoltaic Solar Tracker: Design, Fabrication, Control, and Comparison
 - Funded by: Faculty of Engineering – The Hashemite University
 - Amount: JD 1,800 (US\$ ≈ 2,542)
 - Duration: 12 months
- Optimization of the Off-Grid and On-Grid Photovoltaic Solar Systems Using a Solar Tracker: Design, Fabrication, Control, and Feasibility Study
 - Funded by: Deanship of Scientific Research – The Hashemite University
 - Amount: JD 131,000 (US\$ ≈ 185,000)
 - Duration: 24 months

Awards

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|--|----------------|
| • GJU Staff Mobility Program Award (supported by German Academics Exchange Service (DAAD))
Host institution: Stralsund University of Applied Sciences (Institute of Renewable Energy Systems) | September 2024 |
| • Best Paper Award in Solar Thermal Energy Track
14th International Renewable Energy Congress (IREC2023) | December 2023 |
| • GJU Staff Mobility Program Award (supported by German Academics Exchange Service (DAAD)) | September 2022 |

Host institution: Fraunhofer Center for Silicon Photovoltaics

- | | |
|---|-------------|
| • Graduation Projects Competition (3rd Place) organized by Jordanian Engineers Association (JEA) | 2021 |
| • Best Research Paper awarded by Scientific Research and Innovation Support Fund, Ministry of Higher education and Scientific Research, Jordan | 2019 |
| • The Hashemite University Scholarship, Jordan | 2002-2006 |
| • SRTD Award to attend Nanotech Europe 2009, Berlin, Germany (SRTD: Support to Research and Technological Development and Innovation Initiatives and Strategies in Jordan Project funded by the European Union) | 2009 |
| • Pratt Fellowship, Virginia Tech | Fall 2006 |
| • Pratt Fellowship, Virginia Tech | Spring 2007 |
| • Graduate Teaching Fellowship, Virginia Tech | Summer 2007 |

Reviewed Papers for

Journals:

- Renewable and Sustainable Energy Reviews (Q1, Impact Factor: 15.9)
- Sustainable Cities and Society (Q1, Impact Factor: 11.7)
- Energy Strategy Reviews (Q1, Impact Factor: 8.2)
- Sustainable Energy Technologies and Assessments (Q1, Impact Factor: 8.0)
- International Communications in Heat and Mass Transfer (Q1, Impact Factor: 6.4)
- Solar Energy (Q1, Impact Factor: 6.0)
- Results in Engineering (Q1, Impact Factor: 6.0)
- Nonlinear Dynamics (Q1, Impact Factor: 5.6)
- Heliyon (Q1, Impact Factor: 4.0)
- Applied Physics Letters (Q1, Impact Factor: 4.0)
- Scientific Reports (Q1, Impact Factor: 3.8)
- International Journal of Non-Linear Mechanics (Q1, Impact Factor: 3.2)
- Buildings (Q1, Impact Factor: 3.1)
- Journal of Vibration and Acoustics (Q1, Impact Factor: 1.7)
- International Journal of Ambient Energy (Q2, Impact Factor: 2.67)
- Symmetry (MDPI) (Q2, Impact Factor: 2.2)
- Microsystem Technologies (Q3, Impact Factor: 1.6)
- Shock and Vibration (Q3, Impact Factor: 1.6)
- Environmental Engineering and Management Journal (Q4, Impact Factor: 0.9)
- Solar (MDPI)

Conferences:

- 22nd International Conference on Research and Education in Mechatronics (REM 2024)
- International Renewable Energy Congress: IREC2022, IREC2023, IREC2025
- IEEE Green Energy and Smart Systems Conference (IGESSC), 2020.
- ASME International Mechanical Engineering Congress, IMECE 2007, 2012, 2013, 2014, 2017
- Frontiers in Education (FIE), 2015
- International Conference on Electrical and Electronics Engineering: ICEEE 2019

- ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference: IDETC/CIE 2009 & IDETC/CIE 2013

Professional Service

- **Chair**, Promotion (to full Professor) Committee of Dr. Hani Muhsen, 2025
- **Chair**, Promotion (to full Professor) Committee of Dr. Mutaz Ryalat, 2025
- **Chair**, Promotion (to full Professor) Committee of Dr. Hisham Elmoaqet, 2025
- **Member**, Promotion (to full Professor) Committee of Dr. Dr Mariam Wajdi, 2025
- **Chair**, Promotion (to full Professor) Committee of Dr. Sameer Al-Dahidi, 2025
- **Member**, Technical Program Committee, 13th International Conference on Power Science and Engineering (ICPSE 2024), Ankara, Turkey, September 27-29, 2024
- **Chair**, Committee to execute/follow up MOU with the Technical Vocational Training Academy (TVTA) / Automotive Technology Academy (ATA), March 2024 to present.
- **Session Chair**, STE : Solar Thermal Energy, 14th International Renewable Energy Congress (IREC2023), Sousse, Tunisia, December 16–18, 2023.
- **Member**, Execution and following up Committee for Quality Management System (ISO 9001:2015 QMS) and Organization Management System (ISO21001:2018 EOMS) at German Jordanian University, October 2023 to present.
- **Member**, Bidding Evaluation Committee for Cleaning PV Solar System at German Jordanian University, September 2023.
- **Supervisor**, German Jordanian University team in Red Bull Soapbox Race, June-September 2023.
- **Member**, Development and Improvement Committee for Solar Energy System at the German Jordanian University, July 2023 to present.
- **Contact Point**, Jordan Optimization of Solar Steam for Industry (JOSSI), a project funded by the German Federal Ministry of Education and Research, April 2023 to present.
- **Member**, Committee for development academic program according to German Accreditation and international practices, German Jordanian University, March 2023.
- **Member**, Technical Committee for maintenance of vehicles with engines at the National Center for Human Resources Development, January 2023 to March 2024.
- **Session Chair**, Smart-Grids, Zero Energy Buildings and Sustainable Session, 13th International Renewable Energy Congress (IREC2022), Hammamet, Tunisia, December 13–15, 2022.
- **Member**, Board of Directors, Jordanian German Academy for Smart Cars Maintenance (JGASCM), (from November 2022 to present).
- **Chair**, Marketing Committee in Mechanical and Maintenance Engineering Department at German Jordanian University (October 2022 to present).
- **Member**, Budget Committee in School of Applied Technical Sciences at German Jordanian University (Academic Year 2022/2023).
- **Member**, Blended Learning Committee in School of Applied Technical Sciences at German Jordanian University (Academic Year 2022/2023).
- **Member**, Promotion Committee (Dr Wahib Owhaib), German Jordanian University, June 2022.
- **Member**, Committee for Listing in National Qualification Framework for Al-Ahliyya Amman University, March 2021.
- **Member**, Committee for Listing in National Qualification Framework for Princess Sumaya University for Technology, May 2021.
- **Member**, Committee for following up of Action Plan for merging eLearning, German Jordan University, February 2021.

- **Chair**, Follow-up Committee of Programs Accreditation in Faculty of Engineering and Technology at Philadelphia University, Jordan, January 2021.
- **Member**, Promotion Committee (Dr Mariam Wajdi), German Jordanian University, January 2021.
- **Member**, Academic Committee of strategy of digital teaching, German Jordanian University, July 2020.
- **Coordinator**, German Accreditation Committee in Mechanical and Maintenance Engineering Department, German Jordanian University. May 2020.
- **Member**, Committee of Quality Assurance for Faculty of Engineering and Technology at the Al-Zaytoonah University of Jordan, 2019.
- **Reviewer**, registered in Accreditation and Quality Assurance Commission for Higher Education institutions, Jordan, from September 2019 to present
- **Representative**, Mechanical and maintenance Engineering Department (at the German Jordanian University) in School Council for academic year 2019/2020 and 2020/2021.
- **Advisor**, for 4th Year students in Mechanical and Maintenance Engineering Department, German Jordanian University, November 2019, February-September 2020.
- **Chair**, Committee for preparing courses to be delivered through internet and social media, School of Applied Technical Sciences, German Jordanian University, March 2020.
- **Member**, Employment and Promotion Committee in Mechanical and Maintenance Engineering Department at German Jordanian University, Academic Year 2019/2020.
- **Member**, Bidding Evaluation Committee for Mechanical Vibrations Lab at German Jordanian University, November 2019.
- **Session Chair**, Applied Mechanics Session, 5th World Congress on Mechanical, Chemical, and Material Engineering (MCM'19 & ICMIE 2019)
- **Session Chair**, Power Electronics Session, 6th International Conference on Electrical and Electronics Engineering (ICEEE 2019)
- **Member**, Technical Committee of 6th International Conference on Electrical and Electronics Engineering (ICEEE 2019)
- **Coordinator**, Quality Assurance and Accreditation Committee in Mechanical and Maintenance Engineering Department, German Jordanian University, 2019.
- **Member**, Quality Assurance and Accreditation Committee in School of applied Technical Science (College level), German Jordanian University, 2019.
- **Member**, E-learning Committee (University level), German Jordanian University, 2018/2019, 2019-2020 & 2020-2021.
- **Representative**, Mechatronics Engineering Department (at the Hashemite University) in Faculty Council for academic year 2017/2018.
- **Member**, Selection Committee for Hult Prize at the Hashemite University, December 2017.
- **Member**, Committee of Preparing documents for Tender for Design, Supply, Delivery, Installation, Testing, and Commissioning of Grid-Connected Photovoltaic Systems at University of Jordan, Jordan, 2016.
- **Contact Person**, Towards a National Qualifications Framework for Jordan - NQF-J A project funded by Erasmus+ (European Union's programme) 2016–2018.
- **Assistant Site Manager**, 1 MWp Zone of Grid-Connected Photovoltaic Systems at the Hashemite University, Jordan, 2014-2015.
- **Member**, Committee of Supervision for Design, Supply, Delivery, Installation, Testing, and Commissioning of Grid-Connected Photovoltaic Systems at the Hashemite University, Jordan, 2015.
- **Member**, Committee of Preparing documents for Tender for Design, Supply, Delivery, Installation, Testing, and Commissioning of Grid-Connected Photovoltaic Systems at the Hashemite University, Jordan, 2013.

- **Contact Person**, Enhancing Quality Assurance Management in Jordanian Universities - EQuAM A project funded by Tempus (European Union's programme) 2013–2015.
- **Contact Person**, Tuning Middle East and North Africa - T-MEDA A project funded by Tempus (European Union's programme) 2014–2016.
- **Member**, Scientific Committee, Enhancing Quality of Technology-Enhanced Learning at Jordanian Universities eQTel, project funded by Tempus (European Union's programme) 2014–2017.
- **Member**, Scientific Committee, Modernising Undergraduate Renewable Energy Education: EU Experience for Jordan – MUREE, project funded by Tempus (European Union's programme) 2013–2015.
- **Member**, QS (World University Rankings) Committee at The Hashemite University, 2013.
- **Member**, Curricula Committee at The Hashemite University, Academic Years 2011–2012. 2012–2013, 2013 – 2014, 2014 – 2015, 2015 – 2016.
- **Member**, DataBase Committee for Service Learning Project at The Hashemite University, 2013. • **Member**, International Scientific Committee of International Conference on Energy, Water, & Environment (ICEWE 2012), Jordan, November 27 – 30 2012.
- **Member**, Committee of Program Accreditation for Renewable Energy Engineering and Sustainability at Al Al-Bayt University, Jordan, October 2015.
- **Member**, Follow-up Committee of General Accreditation for Hittien College, Jordan, July 2013.
- **Member**, Follow-up Committee of General Accreditation for Philadelphia University, Jordan, June 2012.
- **Member**, Hashemite University Committee to establish a Microsystem Center.