

CURRICULUM VITAE

MOHAMAD I. AL-WIDYAN

Department of Mechanical Engineering
College of Engineering
Jordan University of Science and Technology (JUST)
Irbid 22110, JORDAN
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EDUCATION

- Ph.D.**, Mech. Power & Machinery Engineering **1997**
College of Engineering
University of Florida, Gainesville, Florida (USA)
Ph.D. Dissertation: *Formation Mechanics and Combustion Characteristics of Elephantgrass and Energycane Wafers (Bioenergy)*
- M.S.**, Mech. Power & Machinery Engineering **1993**
College of Engineering
Kansas State University, Manhattan, Kansas (USA)
Master's Report: *AUS-DOE-funded project on "Biodiesel in CI Engines."*
Master's Report: *Oxides of Nitrogen (NO_x) Emission from Diesel Engines*
- B.S.** Mechanical Engineering- Thermal **1985**
Faculty of Engineering
Yarmouk University, Irbid, Jordan

WORK EXPERIENCE

- Director of Academic Development and QA Center 09/2014-09/2016
Professor of ME
Jordan University of Science and Technology (JUST)
- Member, Board of Trustees 02/2016-present
College of the Royal Jordanian Geographic Center
- Member of JUST Study Plan Committee 09/2014-09/2016
JUST, Irbid, Jordan
- Member of JUST Admin. Development Committee 09/2014-09/2016
JUST, Irbid Jordan
- Member of ISO 9001:2008 Steering Committee 09/2014-09/2016
JUST, Irbid Jordan
- Member of JUST Newsletter Editorial Board 09/2014-09/2016
JUST, Irbid, Jordan

<u>Member of JUST Central Admin. Quality Committee</u> JUST, Irbid, Jordan	10/2015-09/2016
<u>Member of JUST Central Academic Quality Committee</u> JUST, Irbid, Jordan	10/2015-09/2016
<u>Coordinator, JUST Scientific Centers' Quality Committee</u> JUST, Irbid, Jordan	01/2016-09/2016
<u>Member of JUST Sustainability Committee</u> JUST, Irbid, Jordan	12/2015-09/2016
<u>Member of the Evaluation Panel</u> Erasmus Mundus/PEACE II	09/2015-present
<u>ABET Committee Coordinator</u> Mech. Engr. Dept., JUST	09/2014-present
<u>Member of KFU Strategic Plan 2016-2020 Committee</u> King Faisal Univ. (KFU), Saudi Arabia	03/2014-09/2014
<u>Dept Coordinator and Program Chair</u> Mech. Engg. Dept. King Faisal University, Saudi Arabia	09/2011-09/2013
<u>Chair of the <i>Vision and Mission Standard</i>, and</u> <u>Chair of the <i>Community Relationships Standard</i></u> KFU Institutional Accreditation Project (NCAAA)	09/2010-09/2014
<u>Chair of Quality, Curriculum, Publications, and</u> <u>Other Committees</u> College of Engineering, KFU, Saud Arabia	2009-2014
<u>Member of the National Technical Committee</u> Faculty-for-Factory Program	2008/2009
<u>Member of the National Coord'n. and Follow-up Committee, and</u> <u>The <i>General Coordinator of the Program at JUST</i></u> Faculty-for-Factory Program	2007/2008
<u>Deputy Director, and</u> <i>Director of Linking with Industry Department</i> <i>Director of Continuing Education Department</i> Consultative Center for Science and Technology, JUST	09/05 – 09/07
<u>Department Head</u> Biosystems Engineering Dept. - Faculty of Engineering JUST, Irbid 22110, Jordan	09/01 – 09/03
<u>Professor, Mech. Engg. Dept., JUST, Jordan</u>	05/2014

<u>Associate Professor (<i>On Sabbatical and Unpaid Leave</i>)</u> Mech. Engg. Dept., KFU, Saudi Arabia	09/2008-09/2014
<u>Assistant/Associate Professor</u> BSE/Mech. Engg. Dept., JUST, Jordan	09/97 – 09/2008
<u>Jordan Military: Maintenance Engineer</u>	1987-1989
<u>Teaching Assistant: Mech. Engrg. Dept.</u> Amman Polytechnic (Community College)	1985-1987

AWARDS AND SCHOLARSHIPS

1. The Jordan Ministry of Education Scholarship for the B.S. Degree, Yarmouk University, 1980-1984.
2. Jordan University of Science and Technology Scholarship for Grad Study, 1991-95.
3. Kansas State University RA Scholarship, 1991-1993.
4. The University of Florida RA Scholarship, 1993-1997.
5. USAID TATWEER Certificate of Appreciation for the Valuable Contribution to the Faculty-for-Factory National Program, Amman, 2007.
6. SAUDI ENGINEERS COUNCIL Certificate of Appreciation for Distinction in Engineering Professional Contribution. Al-Ahsa, July, 2013, KSA.
7. BEST TRANSLATED BOOK AWARD (Year 2014)
Philadelphia University National Award (Jordan)

SCIENTIFIC MEETINGS AND CONFERENCES

- **The Irrigation Management and Saline Conditions: Regional Symposium on Salinity and Irrigation**-JUST, Jordan, June 1999.
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- **The 6th International Symposium on Fruit, Nut, and Vegetable Production Engineering**- Potsdam, Germany, Sept., 2001.
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- **The IASTED Conference** – Renewable Energy and Power Systems – Crete, Greece, Summer, 2002.
- Attended a Workshop on **Renewable Energy Technology and Energy Efficiency** funded by the **US Department of State, AUB, Beirut, Lebanon**, April, 2004.

- Group Leaders Workshop on **Renewable Energy Technology and Energy Efficiency** funded by the US Department of State, **AUB, Beirut, Lebanon**, Jan. 24-25, 2005 (*Attended as leader of Group III*).
- The **IASTED Conference** – Renewable Energy and Power Systems – Krabi, Thailand, April 2005.
- Attended a training Workshop on **Small-Scale Biogas and Geothermal Technology**. The Biogas Research and Training Center, **BRTC, Chengdu, Sichuan Province, China**, November, 2005.
- **Invited Speaker** at the NATO-Funded Advanced Workshop "Enhancing Security in the Middle East by Cooperation in *Renewable Energy*." London School of Economics, London, UK. Jan. 16-18, 2008.
- Many energy- and academic quality-related workshops and events. Saudi Arabia, 2010-2014.
- 5th QS-MAPLE Conference on World University Rankings, May 5-7, 2015, Doha, Qatar.
- The HEAC, British Council, and UK QAA-Organized 5-day Workshop on Preparing Nationally Certified Academic Reviewers. March 2015, Amman, Jordan
- Attended the Entrepreneurial University Seminar. Sept., 2015, British Council, Amman, Jordan.

WORKSHOPS

Attended Workshops - Selected

- Attended JICA Workshop on Jordanian Industry and Education Sector-University of Jordan, Amman, Sep., 2005.
- Appointed by JUST president as member of the "**Master's Program Committee in Energy Technology**." Mech. Engineering Dept., JUST, Sep., 2005-present.
- Attended a workshop on "**Modern University Instructional Methods-Electronic Learning**." The Academic Development Center, Jordan Univ. of Science and Technology. November 4 -5, 2007.
- Attended a Workshop on **Strategic Planning in Academic Institutions**. April 18-20, 2009. Al-Hasa Intercontinental, Al-Hofuf, Eastern Province, KSA.
- Attended a Workshop on **Development of Skills for Academic Leaders: Strategic Planning, Academic Accreditation, and Management of Change**. May 9-13, 2009. Al-Hasa Intercontinental, Al-Hofuf, Eastern Province, KSA.

Delivered Workshops

- Conducted a training workshop on Energy Efficiency and Audit, The JUMP Program, Taleb Al-Deeb Furniture Company, Summer, 2005, Irbid Jordan.
- Conducted a training workshop on *Training Needs Assessment and Planning*. Consultative Center for Science and Technology, JUST, and Irbid Chamber of Commerce, Irbid, Jordan. March, 2006.
- Conducted a Workshop on *Training of Trainers*. January 13-18, 2007. Abu Dhabi, UAE.
- Conducted a Workshop on *Training of Trainers* for Abu Dhabi Air Force Staff, Abu Dhabi, March 13-18, 2007. Abu Dhabi, UAE.
- Conducted a Workshop on *Maintenance Management* for Abu Dhabi Air Force Staff. June 9-13, 2007. Abu Dhabi, UAE.
- Conducted a Workshop (Training Course) on *Heat Exchangers: Operation, Maintenance, and Troubleshooting*. April 25-28, 2009. SABIC HQ, Riyadh, KSA.
- Conducted a Workshop (Training Course) on *Heat Exchangers: Operation, Maintenance, and Troubleshooting*. July 04-07, 2009. SABIC HQ, Riyadh, KSA.
- Conducted a Workshop (Training Course) on *Heat Exchangers: Operation, Maintenance, and Troubleshooting*. Jan., 2010. SABIC HQ, Riyadh, KSA.
- Conducted a Workshop (Training Course) on *Boilers: Operation, Maintenance, and Troubleshooting*. Jun., 2010. SABIC HQ, Riyadh, KSA.
- Conducted a Workshop (Training Course) on *Hydraulic and Pneumatic Systems: Operation, Maintenance, and Troubleshooting*. Dec. 10-14, 2011. SABIC, Al-Khubar (Holiday Inn), KSA.
- Conducted a Workshop (Training Course) on *Heat Exchangers: Operation, Maintenance, and Troubleshooting*. April 01-03, 2012. Oman-India Petrochemical Co., Sur, Oman
- Conducted a Workshop (Training Course) on *Rotating Equipment: Pumps and Compressors: Operation, Maintenance, and Troubleshooting*. SABIC, May 27-30, 2012, Al-Khubar (Holiday Inn), KSA.
- Conducted a Workshop (Training Course) on *Process Plant: Startup, Commissioning and Troubleshooting*. SABIC, Nov. 24-28, 2012, Al-Khubar (Holiday Inn), KSA.
- Conducted a Workshop (Training Course) on *Mechanical Integrity and Safety*. Dubai, UAE, Oct. 22-24, 2013, Dubai Elect. and Water Authority.

- Conducted a Workshop (Training Course) on *Machinery Vibration & Condition Monitoring* (ADNOC). Abu Dhabi, UAE, Jan. 12-16, 2014.
- Conducted a Workshop on *ABET Accreditation*. Organized by HEAC on the PSUT Campus, May 31st 2015, Amman. Deans and Dean Assistants in Jordanian Universities.

ACTIVITIES

Research Grants

- **The team member of Phase I (US\$ 100, 000.00) of the National Biogas UNDP-funded Project-The JUST Component, Jan., 2004 to Jan. 2006. (The team consisted of the Coordinator and one member only).**
- **The team member of Phase II (US\$ 100, 000.00) of the National Biogas UNDP-funded Project-The JUST Component, Dec., 2006 to Dec., 2008. (The team consists of the Coordinator and one member only).**
- **A € 25, 000.00 DAAD (The German Agency for International Academic Cooperation) -funded Technical Collaboration with and Visit to the Companies and Labs of Renewable (*Geothermal*) Energy (Prof. Markus Brautch) at the University of Applied Sciences at Amberg, Germany, September 2004 (part of an agreement**
- The PI of work for improving the mechanical design of long vehicles chassis for a small size local enterprise. A study funded by *The Jordan Higher Council for Science and Technology* (JD 5,000.00 = US\$7500.00) – completed- .
- The PI of work for exploring heat recovery from combined *geothermal* and olive cake composting in a closed fermenter under controlled conditions. A study funded by *Tatweer* (JD 3,500.00 = \$5000.00). *Tatweer* is a USAID-funded project aimed at developing Jordanian small- and medium-sized enterprises (SMEs) – completed-.
- The PI of a proposal submitted to **Tatweer** for designing and installing a heat exchanger for a local plastic co. (SME) and utilizing *geothermal* energy for cooling. The proposal was approved. Fund: JD 4,000.00 = \$6000.00 – completed-.
- The PI and coordinator of a 6-million SAR (>1.5 million USD) grant to Saudi ARAMCO on energy conservation and efficiency. Pending approval.
- The PI (4 projects) and Co-PI (1 project) of 5 research projects funded by KFU (Saudi) Deanship of Research for a **total of about \$50,000.00.**

Professional Activities and Consultations

- Member of the *JUST Energy Center* delegate in the visit to the **Swedish Institute of Technology (KTH), Stockholm, Sweden**, Feb. 4 to Feb. 10, 2006. Part of the **EU TEMPUS-funded** project.
- Member of the **National Coordination and Follow-up Committee** of the **Faculty-for-Factory** program in its 5th cycle.
- The **General Coordinator** of the **Faculty-for-Factory** program at JUST.

- The co-author of a funded project from the Jordan Higher Council of Science and Technology for designing and installing a combined system of a ground well, a partially buried olive cake covered tank, and an olive cake compost pile embedded with a heat exchanger for the production of hot water for olive mill use – completed-.
- Member of the **National Technical Committee** for evaluating the proposals submitted to the 6th (2008) Cycle of the FFF National Program (June, 2008-present).
- Translated two books on *energy efficiency and audit*, respectively.
- Invited scholar to an EU-funded training program on “**Renewable and Geothermal Energy Management**,” Lisbon, Portugal. April, 2017.

PUBLICATIONS - Selected

1. Abu-Qudais and **M.I. Al-Widyan**. 2002. Performance and emissions characteristics of a diesel engine operating on shale oil. *Energy Conversion and Management*, V 43: 673-682.
 2. **Al-Widyan, M.I.** and Al-Jalil, H.F. 2002. Stress-density relationship and energy requirement of compressed olive cake. *Applied Engineering in Agriculture*, V 17(6): 749-753.
 3. **Al-Widyan, M.I.**, G. Tashtoush, and M. Abu-Qudais. 2002. Utilization of ethyl ester of waste vegetable oils as fuel in Diesel engines. *Fuel Processing Technology*, V 76: 91-103.
 4. **Al-Widyan, M.I.**, G. Tashtoush, and A.I. Khair. 2002. Briquettes of olive cake as a potential source of thermal energy. *Journal of Solid Waste Technology and Management*, 28(2): 51-59.
 5. **Al-Widyan, M.I.**, H.F. Al-Jalil, M. Abu-Zreig, and N.H. Abu-Hamdeh. 2002. Physical durability and stability of olive cake briquettes. *Journal of the Canadian Biosystems Engineers*, V. 44: 3.41-3.45.
 6. **Al-Widyan, M.I.** and A.O. Al-Shyoukh. 2002. Experimental evaluation of the transesterification of waste palm oil into biodiesel. *Bioresource Technology*, V 85: 253-256.
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7. Tashtoush, G. and **Al-Widyan, M.I.** 2003. Combustion performance and emissions of ethyl ester of a waste vegetable oil in a water-cooled furnace. *Applied Thermal Engineering*, V23(3): 285-293.
 8. Tashtoush, G., **M. I. Al-Widyan**, and M. Al-Jarrah. 2004. Experimental study on evaluation and optimization of conversion of waste animal fat into biodiesel. *Energy Conversion and Management*, V45:697-2711.
 9. Abdalla, F., **M. Al-Widyan**, et al. 2004. Status of Jordan Energy Sector: Problems, Needs and Challenges. A paper presented at the *Workshop on Renewable Energy Technology and Energy Efficiency* funded by the US Department of State, AUB, Beirut, Lebanon, April, 2004.

10. **Al-Widyan, M.I.**, S. Amourah, L. Hilles, R. Malkawi, and A. Abu-Al Ragheb. 2007. Design and testing of a small-scale solar crop dryer. *Agricultural Mechanization in Asia, Africa and Latin America (AMA)*, Japan. Vol. 38(4): 9-12.
11. **Al-Widyan, M.I.**, G. Tashtoush, and A.M. Hamasha. 2006. Combustion and Emissions of Pulverized Olive Cake in a Tube Furnace. *Energy Conversion and Management*, V 47(11&12):1588-1590.
12. Al-Jalil, H. J. Amayreh and **M.I. Al-Widyan**. 2007. Feasibility of collecting ambient air moisture by forced condensation. *Agricultural Mechanization in Asia, Africa and Latin America (AMA)*, Japan. Vol. 38 (1): 51-54.
13. Tashtoush, G., **M.I. Al-Widyan**, and A. Albatayneh. 2007. Factorial analysis of diesel engine performance using different types of biofuels. *Journal of Environmental Management*, V 84 (4): 401-411.
14. Al-Mahasneh Majdi, **Al-Widyan, M.**, Ababneh, H., Rababah, T., and Eriefej, K. 2008. Grain dust as an energy and food resource. *Natural Resources Research*, V17 (1): 13-20.
15. **Al-Widyan, M.**, Al-Mahasneh, M., Ababneh, H. 2008. Heat recovery opportunities from a grain dust composting pile. *Journal of Solid Waste Technology and Management*, V34(3): 140-148.
16. **Al-Widyan, M.**, and Al-Muhtaseb, M. 2010. Experimental investigation of Jojoba as a renewable energy source. *Energy Conversion and Management*, 51: 1702–1707.
17. Abu-Ashour, J., Abu Qdais, H., and **Al-Widyan, M.I.** 2010. Estimation of animal and olive solid wastes in Jordan and their potential as a supplementary energy source: An overview. *Renewable and Sustainable Energy Reviews* 14: 2227–2231.
18. **Al-Widyan, M.I.**, Oweis, R., Abu-Qdais, H., Al-Muhtaseb, M., and Hamasha, S. 2010. Composition and energy content of dental solid waste. *Resources, Conservation and Recycling*, 55: 155–160.
19. **Al-Widyan, M.I.** and F. AL-Oqla. 2011. Utilization of supplementary energy sources for cooling in hot arid regions via decision-making model. *International Journal of Engineering Research and Applications (IJERA)*, 1(4): 1610-1622.
20. **Al-Widyan, M.I.**, and F. AL-Oqla. 2013. Selecting the most appropriate corrective actions for energy saving in existing building A/C in hot arid regions. *Building Simulation: An International Journal*, Vol. 7: 537-545.
21. Abu Qdais, H. and **M.I. Al-Widyan**. 2015. Anaerobic digestion of low- and high-solids food waste under mesophilic conditions. *Submitted*.

BOOK CHAPTERS

1. Mason, Michael, Al-Muhtaseb, Mu'taz and **Al-Widyan, M.I.** 2009. The energy sector in Jordan - current trends and the potential for renewable energy. *In: Michael, M. and Amit, M. (eds.) Renewable Energy in the Middle East. Springer Netherlands, Dordrecht, Netherlands, ISBN 9781402098901. Pages 41-54.*
2. **Al-Widyan, M.I.**, and Al-Muhtaseb, M. 2009. Institutional Aspects of a Regional Energy System. *In: Mason, Michael and Mor, Amit, (eds.) Renewable Energy in the Middle East. Springer Netherlands, Dordrecht, Netherlands, ISBN 9781402098901. Pages 177-195.*

TRANSLATED BOOKS (*from English to Arabic*)

1. John Krigger, and Chris Dorsi. **The Homeowner's Handbook to Energy Efficiency: A Guide to Big and Small Improvements.** Saturn Resource Management, Inc. Helena MT 59601, USA.
A KACST-funded project for translating the book from English to Arabic (completed: 416 p).
2. Albert Thuman, Terry Niehus, and W. Younger. **Handbook of Energy Audits,** 9th Ed., 2013. Fairmont Press/CRC, Georgia, USA. *A KFU-funded project for translating the book from English to Arabic (completed; under review: ~ 500 p).*

MASTER'S AND Ph.D. THESES SUPERVISED

1. “**Enhancement of thermal performance of fins subjected to natural convection through body perforations**”- Local Co-supervisor.
Ph.D. Dissertation – Mechanical Engineering Dept.- Baghdad University, 2000.
2. “**Experimental evaluation of the conversion and utilization of waste animal fats as biodiesel**”
Master's Thesis – Mechanical Engineering Dept.- JUST, 2002.
3. “**Experimental study of combustion characteristics of pulverized olive cake in a drop-tube furnace**”
Master's Thesis – Mechanical Engineering Dept.- JUST, 2002.
4. “**Stabilization of soils using biological converged olive mill by-product**”
Master's Thesis – Civil Engineering Dept.- JUST, 2002.
5. “**Design and building of a small-scale biodiesel plant under optimum conditions**”
Master's Thesis – Mechanical Engineering Dept.- JUST, 2003/2004.

COURSES TAUGHT: Selected

Jordan Univ of Sci & Tech. (BS)

Thermo and Heat Labs

Internal Combustion Engines and Labs

Waste-to-Energy Processes

Graduate MS courses

Energy Efficiency
Intermediate Heat Transfer
Renewable Energy Systems
Energy Conversion Technology

King Faisal University(BS)

Thermodynamics I and II
Heat Transfer
HVAC
Energy Conversion
Renewable and Solar Energy

AFFILIATIONS (Currently Active)

- Jordan Engineers Association/ME Section (Amman-Jordan).
- American Society of Mechanical Engineers (ASME), USA.
- Association of Energy Engineers (AEE), Atlanta, GA, USA.

REFERENCES: Available upon request.
