

CURRICULUM VITAE

Name

Prof. Mohammad Ahmad Hamdan

Present Address

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The University of Jordan

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Scopus: <https://www.scopus.com/authid/detail.uri?authorId=35585888600>

Nationality

Jordanian

Education

Ph.D. Mechanical Engineering. Washington State University (Pullman) (USA). 1985. Dissertation entitled “Radiative heat transfer in nonisothermal combustion products.”

M.Sc Mechanical Engineering (Combustion & Energy). University of Leeds, United Kingdom (1977). Dissertation entitled “inhibitory effects of inorganic halogen compounds on hydrogen-air and methane-air mixtures”.

B.Sc. Mechanical Engineering. University of Wales (Cardiff). United Kingdom (1976).

Work Experience:

Sept. 2014 - present Professor of Mechanical Engineering. The University of Jordan. Amman-Jordan

Sept. 2009-Sept. 2014 Dean of Faculty of Engineering, Al-Zaytoonah University of Jordan. Amman-Jordan

2008 – Sep. 2009 Engineering sector Advisor at Higher council for science and technology.

2003 – 2009 Professor of Mechanical Engineering. The University of Jordan. Amman-Jordan

2001- Sept. 2003 Dean of faculty of Engineering. Hashemite University. Zarqa-Jordan

Work Experience:

1997 –2001	Dean of the faculty of Engineering & Technology. University of Jordan. Amman-Jordan.
1995 – 1997	Chairman of Mechanical Engineering Department. University of Jordan. Amman-Jordan.
1994-1995	Associate Professor. University of Jordan. Amman- Jordan.
1993-1994	Chairman of Mechanical Engineering Department, Philadelphia University. Amman-Jordan (On Sabbatical leave).
1991-1993	Chairman of Mechanical Engineering Department. University of Jordan. Amman-Jordan.
1995 – 2001	Professor of Mechanical Engineering, University of Jordan. Amman-Jordan
1990-1995	Associate Professor. University of Jordan. Amman- Jordan.
1985-1990	Assistant Professor. The University of Jordan. Amman-Jordan.
1983-1984	Teaching Assistant, Washington State University, Pullman, WA, USA
1981-1983	Research Assistant. Washington State University, Pullman, WA, USA
1979-1980	Lecturer at the Mechanical Engineering Department, University of Jordan. Amman- Jordan
1977-1978	Design Engineer in the field of central heating & air conditioning.

Research Interests

- Renewable Energy
- Nonotechnology
- Alternative fuels
- Combustion and pollution
- Heat Transfer

Courses Taught

1. Energy Conversion (Graduate course)
2. Research Methodology (Graduate course)
3. Combustion (Graduate course)
4. Convective Heat Transfer (Graduate course)

Courses Taught

5. Radiation & Conduction Heat Transfer (Graduate course)
6. Engineering Measurements (Graduate course)
7. Compressible flow (Graduate course)
8. Internal Combustion Engines.
9. Thermodynamics
10. Heat Transfer
11. Aerodynamics
12. Solar Energy
13. Heat Exchanger
14. Thermal Sciences
15. Mechanical Measurements.
16. Air Conditioning

Journal Published

Research:

1. M. A. Hamdan and W. Grosshandler “**Transmittance through nonisothermal combustion gas mixtures**” Presented at the 23rd National Heat Transfer Conference. Denver, Colorado (1985).
2. M. A. Hamdan and B. A. Jubran “**The effect of Ethanol addition on the performance of Diesel and Petrol engines**” Dirasat (University of Jordan), Vol.XIII No.10 (1986).
3. S. M. Habali, M. A. Hamdan, B. A. Jubran and A. O. Zaid “**Wind speed and wind energy potential of Jordan**” Journal of the International Solar Energy Society. Vol.38, No.1, pp. 59–70 (1987).
4. S. M. Habali, M. A. hamdan, B. A. Jubran and A. O. Zaid ” **Laminar to turbulent transition: Free stream turbulence, favorable pressure gradients and surface roughness effects**”, Dirasat (University of Jordan), Vol. XIV, No. 9, (1987).
5. S. M. Habali, M. A. hamdan, B. A. Jubran and A. O. Zaid “**Assessment and application of wind energy of Jordan**”, J. of the Int. Solar Energy Society., vol. 40, no 2, pp.99-105 (1988).
6. S. M. Habali, M. A. S. Hamdan, B. A. Jubran and Adnan I. O. Zaid “**Optimization of insulation thickness in a long term solar storage system**”, Solar & Wind Technology, Vol. 5, No. 1, pp. 75-82 (1988).
7. S. M. Habali, M. A. S. Hamdan, B. A. Jubran, and Adnan I. O. Zaid “**strategies for solar heating systems**” Solar & Wind Technology. Vol. 5, No1, pp. 83-91 (1988).
8. B. A. Jubran, S. A. Habali, M. A. Hamdan, and I. O. Zaid, “**Some mechanical and thermal properties of clay bricks for the Jordan valley region**” RILEM Journal. Material and Structures, Vol. 21, pp.364-369. (1988). France.

Journal Published
Research:

9. B. A. Jubran, S. M. Habali, M. A. Hamdan and M. Amr, " **Energy saving potential in swimming pools in Amman**", DIRASAT, Vol. IV, No.6, PP. 253-264.1988.
10. A. I. O. Zaid, S. M. Habali, M. A. Hamdan, and B. A. Jubran, " **The potential and application of renewable energy in Jordan**" Proceeding of energex 88, vol.3, section XIII-XVIII, Nov. 1988.
11. M. A. Hamdan, S. M. Habali, and B. A. Jubran, " **Community solar heating system: a case study for Jordan**", International Journal of Sustainable Energy, vol. 7, no. 2, pp. 85-91 1989
12. S.M.Habali, B.A.Jubran, M.A.Hamdan, and M.K.Abdelazeez, " **Evaluation of industrial noise in Jordan**", Journal of Applied Acoustics vol.28, no.4, Pages 253-262 (1989).
13. B.A.Jubran, S.M.Habali, and M.A.Hamdan. " **Correlations of transitional boundary layer over a rough surface**", DIRASAT (university of Jordan), vol.17, no. 1 (1990).
14. M. A. Hamdan, B. A. Jubran and R. M. Rasheed " **Energy conservation in traffic**", Energy Conversion and Management, vol.32, no.6, pp.515-518, (1991).
15. B.A.Jubran, M.A.Hamdan, and W.Manfalouty." **Modelling free convection in a trombe wall**", Renewable Energy an International Journal. vol. 1, no.4 (1991).
16. M.A.Hamdan and A.Al-Sayeh." **Diffuse and global solar radiation correlations for Jordan**", International Journal of Sustainable Energy, vol.10, pp.145-154 (1991).
17. A.A.Amer, B.A.Jubran, and M.A.Hamdan. " **comparison of different two-equation turbulence models for prediction of film cooling from two rows of holes**", J. Numerical Heat Transfer, part a. vol. 21, no. 2, pp.143- 163 (1992).
18. M.A.Hamdan, B.A.Jubran. " **Thermal performance of three types of solar air collectors for the Jordanian climate**", J. Energy, vol. 17, no2, pp. 173- 17, (1992).
19. B.A.Jubran, M.A.Mamdan and A.R.Mansour " **Some experimental aspects of drag reduction in thermoplastic pipes**" Polymer-Plastics Technology and Engineering. vol.31,pp.259-269 (1992).
20. M.A.Hamdan, A.I.Al-Sayeh and B.A.Jubran " **Solar hybrid heating systems for greenhouses**", Applied Energy Journal, vol. 41, no 4, pp.251-260 (1992).

Journal Published
Research:

21. M.A.Hamdan, B.A.Jubran “**Some theoretical and experimental aspects of built-in solar storage**” Renewable Energy an International Journal vol.2, no.3 (1992).
22. B.A.Jubran, M.A.Hamdan, and A.R.Mansour, “**Drag reduction by chemical additive in capillary tubes and square ducts**” Journal of Engineering Fluid Mechanics, vol,5, no.4, pp.481-499. (1992).
23. M.A.Hamdan, A.I.Zaid, S.M.Habali and B.A.Jubran “**Olive cake as an alternative source of energy in Jordan**” Mu'tah Journal for Research and Studies. University of Mu'tah. Vol. 8, no. 6 (1993). In Arabic.
24. M.A.Hamdan and N.Gazzawi “**The effect of clouds on solar radiation**” energy conversion and management Vol.34, no.1 pp.29-32 (1993).
25. B.A.Jubran, A.R.Mansour, M.A.Hamdan and B.Tashtoush “**An approximate analytical solution for the prediction of transient responses of the trombe wall**” international communications in heat and mass transfer journal. Vol.20, Number 4, pp.567-577 (1993).
26. M.A.Hamdan, B.A.Jubran, and S, Remawi. “**Water conservation in solar domestic hot water systems.**” energy conversion and management, Vol.34, no.4, Pages 287-291 (1993).
27. M.A.Hamdan “**Theoretical and experimental study of an integrated rock-bed thermal storage system**” Int.J. Solar energy. Vol. 14, no.1 (1993).
28. B.A.Jubran, M.A.Hamdan and R.M.Abdualh “**Enhanced heat transfer, missing pin, and optimization for cylindrical fin pins arrays**” ASME trans. journal of engineering heat transfer. Vol. 115, No. 1(1993).
29. B.A.Jubran, M.A.Hamdan and A.R.Mansour “**Drag reduction using pure natural honey, with particular reference to biomedical engineering**”, Polymer-Plastics Technology and Engineering, Vol. 33, no 1, pp. 37-53, (1994).
30. M.A.Hamdan “**Solar radiation data for Amman**” applied energy Journal, Vol.47, No. 1 , Pages 87-96 (1994).
31. M.A.Hamdan “**Thermal gain through windows**” energy conversion and Manegment.Vol.35, No. 6, Pages 501-506 (1994).
32. B.A.Jubran, M.A.Hamdan and A.S.Awwad, “Prediction of transitional boundary layer over smooth and rough surfaces.” Encyclopedia of fluid mechanics” advances in flow dynamics. p.139 (1994).
33. B.A.Jubran and M.A.Hamdan “**Optimization of cylindrical pin fin arrays with an accelerated flow based on forced convective heat transfer**” International Journal of heat and technology. Vol. 12, no. 1 (1994).

Journal Published
Research:

34. B.A.Jubran, M.A.Hamdan and A.I.Al-Sayeh “**Transition modeling for the prediction of heat transfer coefficient of a gas turbine blade**” applied energy journal, Vol. 49 (1994).
35. M.A.Hamdan and I.M.Abu-Zahra “**Thermal energy storage in fluidized bed storage system**” heat and technology. Vol. 12, no. 1 (1994).
36. Ali Badran and M.A.Hamdan “**Inverted trickle solar still**” International Journal Solar Energy, Vol. 17, No. 1, pp. 51-60 (1995).
37. M.A.Hamdan and B.A.Kakish “**Solar radiation attenuation caused by atmospheric pollution**”, Energy conversion and management. Vol. 36, No.2, Pages 121-12 (1995).
38. M.A.Hamdan “**Simulation and experimental analysis of built in solar water heater**” International Journal of Sustainable Energy, Vol.18, pp. 33-40 (1995).
39. B.A. Jubran, S.A. Swiety and M.A. Hamdan, “**Convective heat transfer and pressure drop characteristics of various array configurations to simulate the cooling of electronic modules,**” International Journal of Heat and Mass Transfer, Vol. 39, No. 16, pp. 3519-3529, 1996.
40. M. A. Hamdan and F. A. Elwerr “**Thermal energy storage using a phase change material**” Solar Energy, Vol.56, No.2, pp.183-189 (1996).
41. B.A. Jubran, A. Albaz, M.A. Hamdan, and A.A. Badran, “**Experimental investigation of local clays and clay schemes as liners for solar ponds,**” Int. Journal of Energy Research, Vol. 20, No. 7, pp. 637-642, (1996).
42. B.A.Jubran, A.Al-Baz, M.A.Hamdan and A.A.Badran “**Effects of climatic conditions on the performance of carnallite solar ponds**”. Int. Journal of Energy Research, Vol.20, pp.1037-1048 (1996)
43. B.A.Jubran, A.A.Badran and M.A.Hamdan “**Solar energy augmentation of a carnalite solar pond using inverted trickle collectors**”. Energy conversion and management. Vol. 38, No. 3, pp.245-252 (1997).
44. A.A.Badran, B.A.Jubran, E.M.Qasem and M.A.Hamdan “**Numerical mode for the behavior of a salt -gradient solar- pond greenhouse-heating system**” Applied Energy. Vol. 58, no.1 pp. 57-72 (1997).
45. M.A.Hamdan and A.Qubbaj “**Inhibition effect of inert compounds on oil shale dust explosion**”. Applied Thermal Engineering, Vol.18, No. 5, pp. 221-229 (1998).
46. M.A.Hamdan “**Investigation of an inexpensive solar collector storage system**” Energy conversion and management. Vol. 39, No. 5/6, pp. 415-420(1998).

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Research:

47. Ali Badran and M.A.Hamdan "**Utilization of solar energy for heating fuel oil**", Energy conversion and management. Vol. 39, no. ½ pp. 105-111 (1998).
48. M.A.Hamdan, A.M.Musa and B.A.Jubran "**The performance of solar still under Jordanian climate**" Energy conversion and management. Vol. 40, pp 495-503 (1998).
49. M. A. hamdan and S. M. El-Azzam "**Direct combustion of oil shale using a circulating fluidized bed combustor**" Dirasat (University of Jordan) Vol. 26, n0. 2 (1999).
50. Y.Khraish and M.A.Hamdan "**Direct combustion of olive cake using fluidized bed combustor**" Energy Resources. Vol. 21. No. 4 (1999).
51. Hamdan, M., Al-Nimr, M.A. and Alkam, M. "**Enhancing forced convection by inserting porous substrate in the core of a parallel-plate channel**", Int. J. Numerical Methods for Heat and Fluid Flow, Vol. 10(5), pp. 502-517 (2000).
52. Khraisha, Y.H., Hamdan, M.A., and Quibia, J. M., '**Combustion of Spent Lube Oil After Mixing with Kerosene or Diesel**', Energy Sources, 23, 757-765 (2001).
53. Alkam, M., Al-Nimr, M.A. and Hamdan, M., "**Enhancing heat transfer in parallel-plate channels by using porous inserts**", Int. J. Heat and Mass Transfer, Vol. 44(5), pp. 931-938 (2001)
54. A. Benmansour, M.A. Hamdan, "**Simulation du Stockage de l'Energie Thermique dans un Lit Fixe de Sphères Contenant un Matériau à Changement de Phase**", Rev. Energ. Ren. Vol.4 pp.125-134 (2001). In French
55. Al-Nimr, M.A., Odat, M. and Hamdan, M., "**Superconductors thermal stability under the effect of the hyperbolic heat conduction model**" JSME, International Journal. Series B, Vol. 45, No. 2 (2002).
56. Al-Odat, M., Al-Nimr, M.A., and Hamdan, M. A, "**Thermal stability of superconductor under the effect of a two-dimensional hyperbolic heat conduction model**", International journal of numerical methods in heat and fluid flow. Vol. 12. No.2. pp. 163-177 (2002).
57. Al-Odat, M., Al-Nimr, M.A., and Hamdan, M., "**Superconductors thermal stability under the effect of the dual-phase-lag heat conduction model**", International Journal of Thermophysics . Vol.23, No.3. pp.856-868(2002)
58. M. A Hamdan and T.A. Al-Subaih "**Improvement of locally produced gasoline and studying its effect on both the performance of the engine and the environment**" Energy conversion and management. Vol.43. pp.1811-1820 (2002).

Journal Published
Research:

59. Mohammed A. Hamdan “**Combustion behavior of pulverized oil shale**” Pacific and Asian Journal of Energy. Vol. 11(1). Pp.23-30 (2001).
60. Mohammed A. Hamdan “**Layered wall design to prevent moisture condensation on its inside surface**” Energy conversion and management. Vol.43. pp. 1821-1828 (2002).
61. A. A. Badran and M. A. Hamdan “**Comparative study for under-floor heating using solar collectors or solar ponds**”, Applied Energy. Vol.77. pp. 107-117 (2004).
62. Mohammed A. Hamdan and I. Al-Hinti “**Analysis of heat transfer during the melting of a phase-change material**” Applied Thermal Engineering. Vol. 24, Issue 13, pp.1935-1944 (2004).
63. M. A. Hamdan and A. Sakhrieh “**Dust explosion of oil shale and olive cake solid fuels: a comparison study**” International Journal of Energy Research. Vol. 29, Issue 10, PP.871-878 (2005).
64. A. Benmansour, M.A. Hamdan and A. Bengueddach “**Experimental and numerical investigation of solid particles thermal energy storage unit**” Applied Thermal Engineering, Vol. 26, Issues 5-6 (2006).
65. M.A. Hamdan and A. M. Al-qaq “**The prediction of heat transfer coefficient in Circulating fluidized bed combustors.**” Energy Conversion and Management Volume 49, Issue 11, November 2008, Pages 3274-3277
66. R. Haj Khalil, A. Sakhrieh and M. Hamdan “**Effect of pressure and inlet velocity on the adiabatic flame temperature of a methane air flame**”, The Jordan Journal of Mechanical and Industrial Engineering, Hashemite University, Volume 4, Number 1, Jan. 2010, Pages 21 – 28.
67. M. A. Hamdan, M. A. Al-Nimr and Vladimir A. Hammoudeh.” **Effect of Second Order Velocity-Slip/Temperature-Jump on Basic Gaseous Fluctuating Micro-Flows**”. Journal of Fluids Engineering (Vol.132, Iss.7): (2010).
68. A. Sakhrieh, M. A. Hamdan and Y.Abdullat “**Experimental Study of Oil Shale and Olive Cake Dust Explosion by Burning Mixtures of Coarse and Fine Particles** ”, The Jordan Journal of Mechanical and Industrial Engineering , Hashemite University, Volume 4, Number 2, March. 2010, Pages 300 - 303.
69. M. A. Al-Nimr, Vladimir A. Hammoudeh and M. A. Hamdan. “**Effect of Velocity-Slip Boundary Conditions on Jeffery-Hamel Flow Solution.**” Journal of Applied Mechanics, Volume 77, Issue 4, (2010).
70. M. A. Hamdan and R. A. Haj Khalil “**Simulation of compression engine powered by biofuels**”. Energy Conversion and Management, Volume 51, Issue 8, August 2010, Pages 1714-1718

Journal Published
Research:

71. A. Alahmer, J. Yamin, A. Sakhrieh, M.A. Hamdan. “**Engine performance using emulsified diesel fuel** “, Energy Conversion and Management, Volume 51, Issue 8, August 2010, Pages 1708-1713.
72. Al Asfar, J. J., Hamdan, M. A., Yamin, J. and Abdullat, Y. “**Theoretical Study of Hydrogen Flow in Porous Medium of Local Sweileh Sand.**”, Energy Conversion and Management, vol. 51 (2010), pp. 1727-1734.
73. Jehad Ahmad Yamin and Mohammad Ahmad Hamdan “**The performance of hydrogen-powered 4-stroke SI engine using locally designed fuel regulator**” Journal of the Brazilian Society of Mechanical Sciences and Engineering, vol.32 no.3 Rio de Janeiro July/Sept. 2010.
74. M. A. Hamdan and J.A. Yamin. “**Simulation of an electrical engine powered by fuel cell - solar energy hybrid system**” International Journal of Electric and Hybrid Vehicles (IJEHV), Vol. 2, No. 4, 2010, pp. 308-314(7)
75. M. A. Hamdan, J. A. Yamin, and R. K. Dabbas “**Inhibitory Effect of Solid Inhibitors on LPG Combustible Mixtures**”, Journal of the Korean Chemical Society, 2010, Vol. 54, No. 3, pp. 295-299.
76. Q. Rana, S. Shabbar, J. Isam and H. Mohammed “**Material characterization and gasification of Jordanian oil shale** “. International Journal of Energy, Environment, and Economics, 19 (4) (2010), pp. 1–16.
77. M. A. Hamdan, Jehad Yamin and E. A. Abdelhafez. “**Passive cooling roof design under Jordanian climate**” Sustainable cities and Society, 2012, volume 5, pages 26–29.
78. M.A. Al-Nimr, V.A. Hammoudeh, M.A. Hamdan and M.H. Es-Saheb, “**Fanno Flow in Microchannels**”, Research Journal of Applied Sciences, Engineering and Technology 4(24) ,2012 , pages 5578-5585
79. Khalifa Isa Burshaid and Mohammad A. Hamdan. “**The reduction of soot formation from fuels using oxygenates additives**”, Energy conversion and management, 2013, Volume 65, Pages 751–754.
80. A. Fafous, J. Asfar, A. Al-Salaymeh, A. Sakhrieh, Z. Al_hamamre, A. Al-bawwab, M. Hamdan, “**Potential of utilizing solar cooling in The University of Jordan**” Energy conversion and management, 2013, Volume 65, Pages 729–735
81. M.A. Hamdan, S.D. Rossides, R. Haj Khalil, “**Thermal energy storage using thermo-chemical heat pump**” Energy conversion and management, 2013, Volume 65, Pages 721–724

Journal Published
Research:

82. Y. Abdullat, M. Hamdan, E. Abdelhafez, and A. Sakhrieh, “**Development of Neural Networks for Enhancement of thermal energy storage using phase change material**” International Journal of Thermal and Environmental Engineering (IJTEE), 2013, volume 5, issue 2 pages 167–173.
83. M. A. Hamdan, R. A. Haj Khalil and E. A. Abdelhafez “**Comparison of Neural Network Models in the Estimation of the Performance of Solar Still under Jordanian Climate**” Journal of Clean Energy Technologies (JO CET), Vol. 1, No. 3, May 2013, pages 238-242.
84. Jehad A. Yamin, Nina Sakhnini, Ahmad Sakhrieh and M. A. Hamdan “**Environmental and Performance study of a 4-Stroke CI engine powered with waste oil Biodiesel**” Sustainable cities and Society, Vol. 9, December 2013, Pages 32–38.
85. Lubna. B. Mohammed, Mohammad. A. Hamdan, Eman A. Abdelhafez, and Walid Shaheen. “**Hourly Solar Radiation Prediction Based on Nonlinear Autoregressive Exogenous (NARX) Neural Network**” Jordan Journal of Mechanical and Industrial Engineering, Vol. 7, Number 1, December 2013, Pages 11–18.
86. Mohammad Hamdan, Lubna Badri and Eman Abdelhafez “**Modeling Triple Solar Still Production Using Jordan Weather Data and Artificial Neural Networks**” International Journal of Thermal and Environmental Engineering (IJTEE), 2014, volume 7, Number 2, pages 87-93.
87. T. Tabazah, M. A. Hamdan, O. Abo Deyab and E. Abdelhafez “**Utilization of Water Produced Hydrogen for Domestic Heating Purposes**” International Journal of Thermal and Environmental Engineering (IJTEE), 2014, volume 7, Number 2, pages 95-99.
88. Ala’a M. Al-Falahat , M. A. Hamdan and Jehad A Yamin. “**Engine Performance Powered By A Mixture Of Hydrogen And Oxygen Fuel Obtained From Water Electrolysis**” International Journal of Automotive Technology, 2013, Volume 15, Issue 1, pp 97-101.
89. M. Abu Mallouh, E. Abdelhafez, M. Salah, M. Hamdan, and B. Surgenor, “**Model development and analysis of a mid-sized hybrid fuel cell/battery vehicle with a representative driving cycle**”, Journal of Power Sources ,2014, Volume 260, Pages 62–71.
90. M. A. Hamdan, A.A. Badran, E. A. AbdelHafez and A. M. Hamdan” **Comparison of neural network models in the estimation of the performance of solar collectors**” Journal of Infrastructure Systems, Volume 22 Issue 4 - December 2016.

Journal Published
Research:

91. E. A. Abdelhafez, M. A. Hamdan, M. Abu mallouh, L. M. Badri A. Aboushi, **“The Effect of Insulation layer to prevent water vapor condensation along the inside surface of a building wall using Neural Network”** Journal of Infrastructure Systems, Volume 22 Issue 4 - December 2016.
92. M. A. Hamdan, E. A. Abdelhafez, A. M. Hamdan, and R. A. Haj Khalil **“Heat Transfer Analysis of a Flat-Plate Solar Air Collector by Using Artificial Neural Network”**, Journal of Infrastructure Systems, Volume 22 Issue 4 - December 2016.
93. Y. Abdullata , A. Sakhrieh ,M. Hamdan **“Enhancement of thermal energy storage using phase change material under Jordanian climate”**, Journal of Infrastructure Systems, Volume 22 Issue 4 - December 2016.
94. Mohammed A Hamdan, Lana A. AL-Qudah, **“Performance Improvement of Shallow Solar Pond Using Nanoparticles”**, Int. J. of Thermal & Environmental Engineering, Volume 11, No. 1 (2016).
95. Mohammed A Hamdan, Derar A.Almomani, **“Performance Study of a Domestic Boiler Fueled by Biodiesel Produced from Rapeseed”**, Int. J. of Thermal & Environmental Engineering, Volume 11, No. 1 (2016).
96. J. Asfar, A. D. Hammad, A. H. Sakhreih and M. A. Hamdan **“Two-Dimensional Numerical Modeling of Combustion of Jordanian Oil Shale”** Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, Volume 38, Issue 9, 2016.
97. Mohammad A. Al-Nimr, Anwar H. Al-Assaf, and Mohammad A. Hamdan, **“The Effect of Slip-Velocity and Temperature –Jump on the Hydrodynamic and Thermal Behaviors of MHD Forced Convection Flows in Horizontal Microchannels”**, Iranian Journal of Science and Technology, Transactions of Mechanical Engineering, Volume 40, Issue 2, pp 95-103, (2016).
98. Eman A. Abdelhafez, Mohammad A. Hamdan, Ahmad R. Al Aboushi **“Simulation of Solar Thermal Hybrid Heating System Using Neural Artificial Network”**, International Journal of Solar Energy Research (JSER), Vol.1, No.2, 2016.
99. M. Abu Mallouh, M. Salah, E. Abdelhafez, M. Hamdan and B. Surgenor, **“Modeling, Simulation, and Performance Comparison of Conventional and Hybrid Vehicles”**, International Review on Modelling and Simulations, Vol 9, No 4, 2016.
100. M. A. Hamdan, E. A. Abdelhafez, and O. Ghnaimat **“Prediction of Hourly Solar Radiation in Amman-Jordan by Using Artificial Neural Networks”** International Journal of Thermal and Environmental Engineering (IJTEE), 2017, volume 14, Number 2, pages 103-108.

Journal Published
Research:

101. M. A. Hamdan and K. K. Kardasi," **Improvement of photovoltaic panel efficiency using nanofluid**", International Journal of Thermal and Environmental Engineering (IJTEE), 2017, volume 14, Number 2, pages 143-151.
102. Raed Al-Rbaihat, Ahmad Sakhrieh, Jamil Al-Asfar, Ali Alahmer, Osama Ayadi, Ahmad Al-Salaymeh, Zayed Al_hamamre, Abeer Al-bawwab, Mohammed Hamdan "**Experimental Investigation and Theoretical Simulation of Adsorption Refrigeration System Driven by Flat Plate Solar Collector**", Jordan Journal of Mechanical and Industrial Engineering, 2017, Volume 11 Number 1, pages 1-11.
103. Mohammad Hamdan, Ruba M. Maály, "**Environmental Evaluation of Emissions from Thermal Power Plants in Jordan: Aqaba Thermal Power Plant Case Study**", International Journal of Thermal and Environmental Engineering (IJTEE), 2017, volume 15, Number 1, pages 63-70.
104. Mohammad Hamdan, Sonia Darabee, "**Enhancement of Solar Water Disinfection using Nanotechnology**", International Journal of Thermal and Environmental Engineering (IJTEE), 2017, volume 15, Number 2, pages 111-116.
105. Mohammad H. Salah, Mohammad A. Abu Mallouh, Mohammad Youssef, Eman Abdelhafez, Mohammad Hamdan, and Brian Surgenor, "**Hybrid Vehicular Fuel Cell/Battery Powertrain Test Bench: Design, Construction, and Performance Testing**", A Transactions of the Institute of Measurement and Control, 2017, Volume 39, Issue 9, pp. 1431–1440
106. Jamil J. Al Asfar, Ahmad AlShwawra, Ahmad Sakhrieh & Mohammad A. Hamdan "**Combustion characteristics of solid waste biomass, oil shale, and coal**" Journal Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 2018, Volume 40, 2018 - Issue 3, Pages 335-342.
107. Mohammad A. Hamdan, Eman M. Alqallab, Ahmad H. Sakhrieh, "**Potential of Solar Cells Performance Enhancement Using Liquid Absorption Filters**", Iran J Sci Technol Trans Mech Eng (2018). <https://doi.org/10.1007/s40997-018-0165-x>.
108. Mohammed Hamdan and Maysa Sarsour," **Effect of nanoparticles on the performance of solar flat plate collectors under Jordanian climate conditions**", Journal of Ecological Engineering, 2018, Volume 19, Issue 2, pages 1–7.
109. Mohammad Hamdan, Alaa Shaalan, Jamil Al-Asfar ," **Solar Window for Hot Domestic Water and Passive Design**" , International Journal of Mechanical and Production Engineering (IJMPE) , 2018, Volume-6, Issue-6, pp. 24-27.

Journal Published
Research:

110. Layth Mohsin, Ahmad Sakhrieh, Ahmad Aboushi, Amer Hamdan, Eman Abdelhafez, Mohammed Hamdan, **“Optimized Cleaning and Cooling for Photovoltaic Modules Based on the Output Performance”**, Thermal Science Journal, 2018, Volume 22, Number 1A, pp. 237-246.
111. Anwar H. Al-Assaf, Mohammad A. Al-Nimr and Mohammad A. Hamdan, **“The Effect of Slip-Velocity and Temperature –Jump on the Hydrodynamic and Thermal Behaviors of MHD Free Convection Flows in Vertical Microchannels”**, Jordan Journal of Mechanical and Industrial Engineering, 2018, Volume 12 Number 2, pp. 131 - 139.
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Research:

120. Mohammad A. Hamdan, Fedaa Tawfiq Abd-Alhamid and Loai Dabbour “**Impact of Passive Techniques on Thermal Behavior of Emergency Shelters**”, Ecological Engineering & Environmental Technology 2021, Volume 22, Issue 3, 112–119.
121. Ahmad Aboushi, Mohammad Hamdan, Eman Abdelhafez, Esra’a Turk, Jwan Ibbini & Nabeel Abu Shaban, “**Water Disinfection by Solar Energy**”, Energy Sources, Part A: Recovery, Utilization, and Environmental Effects Journal, 2021, Volume 43, issue 17, pp. 2088-2098.
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125. Eman Abdelhafez, and Mohammad Hamdan “**Correlation Between Weather and COVID-19 Pandemic in Jordan**”, Fresenius Environmental Bulletin, 2021, Volume 30, Issue 5, pp.4893-4900.
126. Loai Dabbour, Eman Abdelhafez and Mohammad Hamdan “**Effect of Climatology Parameters on Air Pollution During COVID-19 Pandemic in Jordan**”, Environmental Research, 2021, Volume 202, 111742.
127. Mohammad Hamdan, Eman Abdelhafez, Reyad Shawabkeh, “**Forecasting Air Pollution with Sulfur Dioxide Emitted from Burning Desulfurized Diesel Using Artificial Neural Network**”, Ecological Engineering & Environmental Technology, 2021, 5:97–102.
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**Conference
Published Research:**

1. A. I. Zaid, S. M., M. A. Hamdan, and B. A. Jubran , " **The use of a half-delta shape vortex augmentor in increasing the power output of a wind turbine**", Proceeding of the international conference of energy systems, Amman, 15th-17th may, 1989.
2. B.A.Jubran, A.R.Mansour, M.A.Hamdan and B.Tashtoush " **A new approximate analytical solution for the prediction of the thermal and hydrodynamic characteristics of the trombe wall**", ASME 28th National Transfer Conference and Exhibition, HTD-VOL.206-2, topics in heat transfer- volume 2. San Diego, CA, USA, Aug. 9-12, pp. 149-159 (1992).
3. Hamdan, M.A., Khraisha, Y.H. and Al-Dabbas, M., " **Combustion of Shale Oil**", Proceedings of the 1st Jordanian Mechanical Eng. Con., Amman, Vol 1, 341-351 (1995)
4. A. Benmansour and M. A. Hamdan " **Stockage de l'Energie dans un Materiau a changement de phase**" CHEMSS'2000. Alger, 13-15 may (2000).
5. A. Benmansour and M. A. Hamdan" **Analyse du Stockage Energie Thermique par chaleur latente,**" CIMAS'I, Casablanca, Maroc. (2000).
6. J. Yamin and M. Hamdan " **The performance of hydrogen-powered engine with fuel regulator**" Workshop on New Trends and Breakthrough in Hydrogen Energy. Istanbul-Turkey. April 02-25 (2001).
7. M.A. Al_Dabbas and M.A. Hamdan " **Mathematical modeling of oil shale combustion in circulating fluidized bed combustors**" Jordan International Chemical Engineering Conference VI. Amman-Jordan (2002).
8. Mohammed A. Hamdan and Sahar M. Al-khairi " **Solid fuel dust explosions**" Accepted for presentation in the First International Exergy, Energy and Environment Conference. Izmer-Turkey. June, 13-17 (2003).
9. R. A. Haj khalil, M. A. Hamdan and J. A. Yamin " **The effect of locally manufactured gasoline fuels on the performance of an engine and on the environment**" The Sixth Jordanian International Mechanical Engineering Conference. Oct. 22-24 2007. Amman—Jordan.

Conference
Published Research:

10. M. N. Hamdan, S. M. Fayyad, M. A. Hamdan.” **Six-port model for sound propagation in a porous media with applications to diesel particulate filters**”, 13th International Conference on Applied mechanics and Mechanical Engineering. May 27-29, 2008, Military Technical College Kobry Elkobbah, Cairo, Egypt.
11. J. Al Asfar, M. Hamdan, J. Yamin, and Y. Abdullat, “**Experimental Investigation of Hydrogen Storage in Local Materials**”. Alternative Energy Applications Conference, Kuwait, 2-5 November (2009).
12. Jihad A. Yamin, Nina Sakhnini, Ahmad Sakhrieh and M. A. Hamdan. “**Performance of CI engines using Biodiesel as fuel**”. GCREEDER international conference, Amman- 2009.
13. J. Al Asfar, M. Hamdan, J. Yamin, and Y. Abdullat. “**Building and Testing of a Simple PEM Fuel Cell**”. GCREEDER international conference, Amman- 2009.
14. A. Sakhrieh, M. Hamdan, "A study on the Jordanian oil shale resources and utilization ", Proceedings of the Fifth Global Conference on Power Control and Optimization, Dubai United Arab Emirates, June 1-3, 2011.
15. Jamil Al Asfar, Ahmad Hammad, Ahmad Sakhrieh and Mohammed A Hamdan “**Theoretical Investigation of Direct Burning of Oil Shale**”, 12th International Combustion Symposium, 24-26 May, 2012, Kocaeli - Turkey, At Kocaeli – Turkey
16. Shadi Eid, Ahmed Al-Salaymeh, Mohammad A. Hamdan, Kais Haddad, Franz Durst. "Online measurements of thermophysical properties of ideal gas mixture in pipes" Zaytoonah University International Engineering Conference on Design and Innovation in Infrastructure 2012 (ZEC Infrastructure 2012), June 18-20, 2012, Amman, Jordan
17. M. H. Salah, E. Abdelhafez, M. Abu Mallouh, and M. Hamdan” **Artificial neural network-based models for electrical actuated automotive cooling systems**” 9th International Symposium on Mechatronics and its Applications (ISMA 2013), April 9-11, 2013 Amman, Jordan
18. M. Abu mallouh, B. Surgenor, E. Abdelhafez, M. Salah, M. Hamdan and M. Yousef, “**Development of Driving Cycle for Amman City with Performance Evaluation for ICE Vehicle**” ASME 2014 12th Biennial Conference on Engineering Systems Design and Analysis, Copenhagen, Denmark, June 25-27, 2014.
19. M. Abu mallouh, B. Surgenor, M. Salah, E. Abdelhafez, A. Hamdan and M. Hamdan, “**Performance Comparison of Different Power Management Control Strategies for a Hybrid Fuel Cell/Battery Vehicle**” ASME 2014 12th Biennial Conference on Engineering Systems Design and Analysis, Copenhagen, Denmark, June 25-27, 2014.

Conference

Published Research:

20. Mohammad Hamdan, Heba Abutayeh and Eman Abdelhafez, " **The effect of storing produced PV power of the national Jordanian Grid**", Ninth Jordanian International Mechanical Engineering Conference (JIMEC 2018), 16-17 October 2018, Amman, Jordan.
21. Nabeel Aboshaban, Eman Abdelhafez, Mohammad Hamdan, Ahmad Al aboushi and Maram Saber, " **Estimation of power produced by PV generator using Data Mining: a case study**", 12th International Renewable Engineering Conference IREC2021, Amman-Jordan, April 14-15, 2021.
22. Mohammad Hamdan and Eman HerzAllah, " **Temperature swing across silica aerogel glazing system under Jordanian climate**", 12th International Renewable Engineering Conference IREC2021, Amman-Jordan, April 14-15, 2021.
23. Osama Ayadi, Mohammad Hamdan, Yousef Al-Far, Abdulrahman Tayseer, Salam Al-Abbadi, Ahmad A'saf, Otabeh Al-Oran, " **Parametric Investigation of Nano-Fluids Utilization in Parabolic Trough Collector**", 12th International Renewable Engineering Conference IREC2021, Amman-Jordan, April 14-15, 2021.
24. Mohammad Hamdan, Ayat Salem, Yazan Shamayleh, " **Harmonization between Renewable Energy and Cloud Computing towards Green Computing A Case Study: Data Center at The University Of Jordan**", 12th International Renewable Engineering Conference IREC2021, Amman-Jordan, April 14-15, 2021.
25. Mohammad Hamdan, Reyad Shawabkeh, " **Utilization of Desulfurized Diesel in Domestic Boiler**", 12th International Renewable Engineering Conference IREC2021, Amman-Jordan, April 14-15, 2021.

Funded Projects

Project Title	Sponsor	Funds
Master on Sustainable Development and Renewable Energy	TEMPUS -EU	1,135, 176.00 (€)
Utilization of Jordanian oil shale as a source of energy	Ministry of Higher Education and Scientific Research / Scientific Research Fund	235,500 (JD)
Experimental Investigation of Solar Cooling Technique	Deanship for Scientific research in the University of Jordan.	56,500 (JD)
Powertrain and Control Design for Hybrid Fuel-Cell/Battery Vehicle	Ministry of Higher Education and Scientific Research / Scientific Research Fund	96,000 (JD)

<u>Funded Projects</u>	Project Title	Sponsor	Funds
	MAster Program of Environmental engineering and Climate change Modernizing	TEMPUS -EU	1,005,683.05 (€)
	Undergraduate Renewable Energy Education: EU Experience for Jordan	TEMPUS -EU	1,325,766.38 (€)
	The Utilization of Water Produced Hydrogen for domestic heating purposes	Al Zaytoonah University of Jordan	10,080 (JD)
	Improvement of the PV performance by cooling using phase change material and by minimizing the deposited dust layer thickness along its surface	Al Zaytoonah University of Jordan	100680 (JD)
	Solar Evacuated Tube Hybrid Heating System	Al Zaytoonah University of Jordan	23320 (JD)
	Experimental Investigation of Solar Cooling Technique	Deanship for Scientific research in the University of Jordan.	56,500 (JD)
	Potential of solar cells performance enhancement using optical fluid filter	Higher Council for Science and Technology and the European Union (SRTDII)	24,600 (€)
	Improving Higher Education Quality in Jordan using Mobile Technologies for Better Integration of Disadvantaged Groups to Socio-economic Diversity	Erasmus +	785,941 (€)
	Modernization of tEachingme Thodologies in higher educatiOn: EU experiece for jorDan and paleStinian territory	Erasmus +	990,590 (€)
	vocational training center for undergraduate university students and teachers in Jordan	Erasmus +	689,938 (€)

Funded Projects

Project Title	Sponsor	Funds
Smart Control Systems for Energy Management: New Master Degree	Erasmus +	981,618 (€)
Development of higher Education teaching modules on the Socio-economic Impacts of the Renewable Energy implementation	Erasmus +	985,055 (€)
Promotion of Innovation Culture in the Higher Education in Jordan	Erasmus +	879,400 (€)
Development of Environmental Engineering and injection of climate change concept for Undergraduated curriculum: EU experience for Jordan and Syria.	Erasmus +	999,512 (€)
Fostering Academia-Industry Collaboration in Food Safety and Quality	Erasmus +	999,975 (€)
Developing a MSc. Programme in Climate Change, Sustainable Agriculture and Food Security	Erasmus +	919,842 (€)
High Level Renewable and Energy Efficiency Master Courses	Erasmus +	999,873 (€)
Integration of renewable energy with cloud computing. A case study : Computer Centre at The University of Jordan	Deanship for Scientific research in the University of Jordan.	5000 (JD)

Funded Projects

Project Title	Sponsor	Funds
traditional craft Heritage training, design and marketing in Jordan and Syria	Erasmus +	953,474 (€)
Vocational Training Diploma on Electrical and Hybrid Vehicles	Erasmus +	999,942 (€)

Professional activities

1. Al Hussein Fund for Excellence prize for the best research in alternative energy (2017).
2. Philadelphia Award - Khalil Salem for the best research in renewable energy (2016).
3. Ali Mango Award for the Ali Mango Award for Distinguished Researcher in Jordan (2015)
4. Dean of faculty of Engineering- Al Zaytoonah University of Jordan 2009 -2014.
5. A consultant for an oil and gas exploitation project in Africa 2003-2005
6. Dean of faculty of Engineering- Hashemite University 2001 -2003.
7. Dean of faculty of Engineering- University of Jordan 1997-2001
8. During this year the Department of Mechanical engineering at the University of Jordan is engaged in accreditation work, consequently I gained familiarity with ABET accreditation.
9. Chairman of Mech. Eng Dept. University of Jordan 1993-1995, and 1995-1997
10. Supervising ten PhD thesis and over seventy M.Sc thesis.
11. Member of the steering committee for the national center for energy research
12. Awarded Hisham Hijawey for the design construction and testing of a solar pond (1997)
13. Visiting professor at Friedrich-Alexander-Universität Erlangen-Nürnberg Erlangen –Germany. Summer 2006.
14. Visiting professor at Friedrich-Alexander-Universität Erlangen-Nürnberg Erlangen –Germany. Summer 2007
15. Visiting professor at Friedrich-Alexander-Universität Erlangen-Nürnberg Erlangen –Germany. Summer 2008
16. Visiting Professor at Friedrich-Alexander-Universität Erlangen-Nürnberg Erlangen –Germany. Summer 2010
17. Visiting professor at Friedrich-Alexander-Universität Erlangen-Nürnberg Erlangen –Germany. Summer 2011
18. Visiting Professor at Friedrich-Alexander-Universität Erlangen-Nürnberg Erlangen –Germany. Summer 2012

**Short courses
attended**

Participating in a distance education course on:

1. **Self-evaluation for academic programs Workshop** organized by the Association of Arab Universities from 15th/6/2013 to 16th/6/2013.
2. **Preparation of External Reviewers & Site Visit Workshop** organized by the Association of Arab Universities and Al-Zaytoonah University of Jordan from 2nd /11/2013 to 4th/11/2013
3. **The Management of University-Industry Partnerships Held from 2nd of October 2000 to 15th of January 2001.** This course was offered by the European Center for Strategic Management of Universities. Brussels, Belgium with the collaboration of UNESCO.
4. **First Advanced Optical Technology Academy**, held at Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen –Germany. Summer 2006