

CURRICULUM VITAE

Name

Prof. Mohammed Ahmed Hamdan

Present Address

Faculty of Engineering and Technology
University of Jordan
Amman- Jordan

Phone: (962-6) 5536636 (Residence)
(962-6) 5355000 ext.22794 .(Office)
962-(0) 777-498980 (mobile)

Fax: (962-6) 5355588

email : mashamdan@yahoo.com

Jordanian

Nationality

Date of birth

5th of August 1952

Marital Status

Married with two sons and one daughter

Education

- Ph.D.** Mechanical Engineering. Washington State University (Pullman) (USA). 1984. Dissertation entitled of “ Radiative heat transfer in nonisothermal combustion products.”
- M.Sc** Mechanical Engineering (Combustion & Energy). University of Leeds , United Kingdom (1977). Dissertation entitled of 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. 09-Present | Dean of Faculty of Engineering, Al-Zaytoonah University. Amman Jordan |
| 1995 (May) - Present | Engineering sector Advisor at Higher council for science and technology. |
| 2001- Sept. 2003 | Dean of faculty of Engineering. Hashmite University. Zarqa-Jordan |
| 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. |

Work Experience:

1993-1994	Chairman of Engineering Department, Philadelphia University. Amman-Jordan (On Sabbatical leave).
1991-1993	Chairman of Mechanical Engineering Department. University of Jordan. Amman-Jordan.
1990 –1995	Associate Professor at the Mechanical Engineering Department, University of Jordan. Amman-Jordan.
1985-1990	Assistant Professor at the Mechanical Engineering Department, 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

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

Courses Taught

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

Published Research:

1. M. A. Hamdan & W. Grosshandler “**Transmittance through nonisothermal combustion gas mixtures**” Presented at the 23rd National Heat Transfer Conference. Denver, Colorado (1985).
2. M. A. Hamdan & 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 & A. O. Zaid “**Wind speed and energy potential of Jordan**” J. of the Int. Solar Energy Society. Vol.38, No.1 (1987).
4. S. M. Habali, M. A. hamdan, B. A. Jubran & 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 & 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 thickens 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 system**” 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 egion**” RILEM Journal. Material and Structures”, Vol. 21, pp.364- 369. (1988).France.
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. A. I. Zaid, S. M., M. A. Hamdan,and B. A. Jubran,”**The use of a half- delta shape votex augmentor in increasing the power output of a wind turbine**”, Proceeding of the international conference of energy systems, Amman,15th-17th may,1989.

Published Research:

12. M. A. Hamdan, S. M. Habali, and B. A. Jubran, "**Community solar heating system: a case study for Jordan**", Int. Solar Energy, vol. 7, pp. 85-91 1989.
13. 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 (1989).
14. 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).
15. M.A.Hamdan, B.A.Jubran, and R.Rushdi."Energy conservation in traffic." Energy Conver & Mgmt vol.32, no.6, pp.515-518, (1991).
16. B.A.Jubran, M.A.Hamdan, and W.Manfalouty."Modeling of free convection in a modified trombe wall", Renewable Energy an International Journal. vol. 1, no.4 (1991).
17. M.A.Hamdan and A.Al-Sayeh."Diffuse and global solar radiation correlations for Jordan."Int. J. Solar Energy, vol.10, pp.145-154 (1991).
18. A.M.Amer, B.A.Jubran, and M.A.Hamdan. "**Comparison of different two-equation turbulence models for prediction of film cooling from two row of holes**", J. Numerical Heat Transfer, part a. vol. 21, no. 2, pp.143- 163 (1992).
19. 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).
20. B.A.Jubran, M.A.Mamdan and A.R.Mansour "**Some experimental aspects of drag reduction in thermoplastic pipes**" Poly-Plast. Technol. Eng. vol.31,pp.259-269 (1992).
21. M.A.Hamdan, A.I.Al-Sayeh and B.A.Jubran "**Solar hybrid heating systems for greenhouses**", Applied Energy J, vol. 41, no 4, pp.143-163 (1992).
22. 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).
23. 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).

Published Research:

24. 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).
25. 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.
26. M.A.Hamdan and N.Gazzawi “**The effects of clouds on solar radiation**” energy conver.Mgmt Vol.34, no.1 pp.29-33(1993).
27. 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).
28. M.A.Hamdan, B.A.Jubran, and S, Remawi. “**Water conservation in solar domestic hot water systems.**” energy conversion. mgmt. Vol.34, no.4 (1993).
29. M.A.Hamdan “**Theoretical and experimental study of integrated rock-bed thermal storage system**” Int.J. Solar energy. Vol. 14, no.1 (1993).
30. 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).
31. B.A.Jubran, M.A.Hamdan and A.R.Mansour “**Drag reduction using pure natural honey with particular reference to biomedical engineering**”, poly.plast. Technol. Eng Vol. 33, no 1, pp. 37-53, (1994).
32. M.A.Hamdan “**Solar radiation data for Amman**” applied energy Journal. Vol. No. 1 (1994).
33. M.A.Hamdan “**Thermal gain through windows**” energy conver. Mgmt.Vol.35, No. 6 (1994).
34. 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).

Published Research:

35. B.A.Jubran and M.A.Hamdan “**Optimization of cylindrical pin fin arrays with an accelerated flow based on forced convective heat transfer**” I.J. of eat and technology. Vol. 12, no. 1 (1994).
36. 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).
37. Ali Badran and M.A.Hamdan “**Inverted trickle solar still**” Int. J. Solar Energy, Vol. 17 (1994).
38. M.A.Hamdan and B.A.Kakish “**Solar radiation attenuation caused by atmospheric pollution** “Energy conversion and management. Vol. 26, No.2 (1994).
39. M.A.Hamdan and I.M.Abu-Zahra “**Thermal energy storage in fluidized bed storage system**” heat and technology. Vol. 12, no. 1 (1994).
40. 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,**” Int. J. Heat and Mass Transfer, Vol. 39, No. 16, pp. 3519-3529, 1996.
41. M.A.Hamdan “**Simulation and experimental analysis of built in solar water heater**” Int.J.Solar energy, Vol.18, pp. 33-40 (1995).
42. M.A.Hamdan and F.M.Al-Wir “**Thermal energy storage using a phase change material**” Solar Energy, Vol.56, No.2, pp.183-189 (1996).
43. B.A. Jubran, A. Albas, M.A. Hamdan, and A.A. Badran,“**Experimental investigation of local clays and clay schemes as liners for solar ponds,**” Int. J.of Energy Research, Vol. 20, No. 7, pp. 637-642, (1996).
44. B.A.Jubran, A.Al-Baz, M.A.Hamdan and A.A.Badran “**Effects of climatic conditions on the performance of carnallite solar pond**”. Int. J. of Energy Research, Vol.20, pp.1037-1048 (1996)
45. M.A.Hamdan and A.Qubbaj “**Inhibition effect of inert compounds on oil shale dust explosions**”. Applied Thermal Engineering, Vol.18, No. 5, pp. 221-229 (1996).
46. B.A.Jubran, A.A.Badran and M.A.Hamdan “**Solar energy augmentation of a carnallite solar pond using an inverted trickle**

collectors". Energy conversion and management. Vol. 38, No. 3, pp.253-262 (1997)

Published Research:

47. M.A.Hamdan "**Investigation of an inexpensive solar collector storage system**" Energy conversion and management. Vol. 39, No. 5/6, pp. 415-420(1998)
48. 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).
49. 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)
50. 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).
51. M.A.Hamdan, A.M.Musa and B.A.Jubran "**The performance of solar still under Jordanian climate**" Energy conversion and management. Vol. 40 (1990)
52. Y.Khraish and M.A.Hamdan "**Direct combustion of olive cake using fluidized bed combustor**" Energy Resources. Vol. 21. No. 4 (1999).
53. A. Benmansour and M. A. Hamdan "**Stockage de l'Energie dans un Materiau a changement de phase**" CHEMSS'2000. Alger, 13-15 mai (2000).
54. A. Benmansour and M. A. Hamdan"**Analyse du Stockage Energie Thermique par chaleur latente,**" CIMAS'I, Casablanca, Maroc. (2000).
55. 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)
56. 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)
57. 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).

Published Research:

58. 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)
59. 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).
60. Mohammed A. Hamdan “**Combustion behavior of pulverized oil shale.**” Pacific and Asian Journal of Energy. Vol. 11(1). Pp.23-30 (2001).
61. Mohammed A. Hamdan “**Layered wall design to prevent condensation on its inside surface**” Energy conversion and management. Vol.43. pp. 1821-1828 (2002).
62. 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)
63. 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).
64. M.A. Hamdan and A.Sakhrieh. “**Dust Explosion of Oil Shale and Olive Cake Solid Fuels**” A comparison Study. The Int. Journal of Energy Research . comparison study: 2005, 29, (10), 871–878
65. A. A. Badran and M. A. Hamdan “**Comparative study for under-floor heating using solar collectors vs. solar pond.** Applied Energy. Vol.77. pp. 107-177 (2004)
66. Mohammed A. Hamdan and I. Al-Hinti “**Analysis of heat transfer during the melting of a phase-change material**” Applied Thermal Energy. Vol. 24. pp.1935-1944 (2004).
67. M. A. Hamdan and A. Sakhrieh “**Dust explosion of oil shale and olive cake solid fuels: a comparison study**” Int. J. of Energy Research. Vol. 29, Issue 10, PP.871-878 (2005)
68. A. Benmansour, M.A. Hamdan and A. Bengueuddach “**Experimental and numerical investigation of solid particles thermal energy storage unit** ” Applied Thermal Energy. Vol. 26, Issues 5-6 (2006)

Published Research:

69. 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
70. M. A. Hamdan and J.A. Yamin. “**Simulation of an electrical engine powered by fuel cell - solar energy hybrid system**” The Global Conference on Power Control and Optimization. 1-3 June 2009. Bali. Indonesia.
71. 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
72. 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
73. 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** ",Accepted for publication in the Jordan Journal of Mechanical and Industrial Engineering , Hasheite University (2009)
74. M. A. Hamdan and R. A. Haj Khalil “**Simulation of compression engine powered by biofuels.** Accepted for publication in Energy conversion and management (2009)
75. I. Ahmar, A. Sakhrieh, J. Yamin and M. Hamdan. “**Experimental study of using emulsified diesel fuel on the performance and pollutants emitted from four stroke water cooled diesel engine**“Accepted for publications in energy conversion and management (2009).
76. M. A. Al-Nimr, Vladimir A. Hammoudeh and M. A. Hamdan “ **Effect of Velocity-Slip Boundary Conditions on Jeffery-Hamel Flow Solution.**” Accepted for Publication in the Journal of Applied Mechanics (2009)
77. 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)
78. J. Al Asfar, M. Hamdan, J. Yamin, and Y. Abdullat. **Building and Testing of a Simple PEM Fuel Cell.** Accepted for publications in

Energy conversion and Management (2009).

Published Research:

79. R. Haj Khalil, A. Sakhrieh and M. Hamdan "**Effect of pressure and inlet velocity on the adiabatic flame temperature of a methane air flame**" **accepted for publication in** Accepted for publication in the Jordan Journal of Mechanical and Industrial Engineering , Hasheite University (2010)
80. A. Sakhrieh and M. Hamdan "**Utilization of Jordanian Oil Shales**" Accepted for presentation in the **Fifth International Conference on Thermal Engineering: Theory and Application. May 10-14, 2010 Marrakesh, Morocco**
- 81 . Mohammed A. Hamdan and Ruba K. Dabbas "**Inhibitory Effects of Solid Inhibitors on Gaseous Combustable Mixtures**" Accepted for publication in JKCS (2010) (2010).
82. 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).
84. Shadi Eid, Ahmed Al-Salaymeh, Mohammad A. Hamdan, Kais Haddad, Franz Durst. "**Online measurements of thermophysical properties of ideal gas mixture in pipes**" Submitted for publication (2009)
85. Rana Qudaih, Ilham Taleb, Isam Janajreh, and Mohammad Hamdan **Characterization and gasification of Jordanian oil shale**". Accepted for publication in the International Journal of Energy, Environment, and Economics" (2010).
86. Jehad Yamin and Mohammad Hamdan" **Simulation of an electrical engine powered by fuel cell - solar energy hybrid system**" submitted for publication (2010)
- 87.. M. S. Hijazi, M. A. Hamdan and J. A. Yamin. **Effect of some oxygenates on the particulate matter level of a DI diesel engine with and without DPF.** Submitted for publications (2010).
88. Jehad A. Yamin, Nina Sakhnini, Ahmad Sakhrieh and M. A. Hamdan. Performance and Environmental study of a 4-Stroke Diesel engine powered with used and unused oil Biodiesel .

- Submitted for publications (2010).
- 89 Y. Abdullata , A. Sakhrieh ,M. Hamdan **Enhancement of thermal energy storage using phase change material under Jordanina climate**. Submitted for publications (2010).
- 90 Ahmad Sakhrieh , Mohammed Hamdan . **A study on the Jordanian oil shale resources and utilization** . Submitted for publications (2010).

1. Fuel cells
2. Combustion and environmental pollution.
3. Different topics in renewable energy
4. Hybrid vehicles
5. Alternative fuels.
6. Flame Inhibition

Professional activities

1. A consultant for an oil and gas exploitation project in Africa 2003-2005
2. Dean of faculty of Engineering- University of Jordan 1997-2001
3. Dean of faculty of Engineering- Hashmite University 2001 -2003.
4. 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.
5. Chairman of Mech. Eng Dept. University of Jordan 1993-1995, and 1995-1997
6. Supervising ten PhD thesis and over twenty five M.Sc thesis.
7. Member of the steering committee for the national center for energy research
8. Awarded Hisham Hijawey for the the design construction and testing of a solar pond (1997)
9. Visiting professor at Friedrich-Alexander-Universität Erlangen-Nürnberg
Erlangen –Germany .Summer 2006.
10. Visiting professor at Friedrich-Alexander-Universität Erlangen-Nürnberg
Erlangen –Germany .Summer 2007

11. Visiting professor at Friedrich-Alexander-Universität Erlangen-Nürnberg
Erlangen –Germany .Summer 2008
12. Visiting professor at Friedrich-Alexander-Universität Erlangen-Nürnberg
Erlangen –Germany .Summer 2010

Short courses
attended

Participating in a distance education course on:

1. **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.
2. **First Advanced Optical Technology Academy** , held at Friedrich-Alexander-Universität Erlangen-Nürnberg .Erlangen –Germany .Summer 2006