

Professor Nasri J. Rabadi



GENERAL:

Present Position: Professor of Mechanical Engineering,
University of Jordan
Amman Jordan

Permanent Address: P.O. Box 13346, Amman 11942 Jordan
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Personal Data: Nationality: Jordanian
Marital Status: Married with three children (all adults now.)
Languages: English and Arabic

EDUCATION:

- University of Illinois at Chicago, Department of Energy Engineering ***Ph.D. in Thermomechanical Engineering, June 1980***, Ph.D. Thesis Title: "Pulsating Flow and Heat Transfer in Curved Tubes," H. A. Simon, Advisor.
- University of Illinois at Chicago Circle, Department of Energy Engineering, ***MS in Thermomechanical Engineering, June 1977*** M.S. Project: "Behavior of Inert Gas Bubbles in Forced Convective Liquid Metal Circuits," W.J. Minkowycz, Advisor.
- Cairo University, Giza, Egypt, Department of Aeronautical Engineering, ***BS Aeronautical Engineering, July 1969***, Undergraduate Project: Airframe Design of an Agricultural Aircraft."

SPECIALIZATION: Thermomechanical Engineering.

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EXPERIENCE:

- **Director General (2010-2012);** Scientific Research Support Fund, Amman Jordan
- **Consultant (2005 – 2006);** Center for Computer Aided Design, University of Iowa, Iowa City, USA Computer simulation of human thermal sensation system. Part of the on going Virtual Soldier Research program.
- **Dean (2001-2003);** Faculty of Engineering & Technology, University of Jordan.
- **Associate Consultant (1990- present);** Jordan Technical Consulting Group
- **Professor; Sep. 1997 to present.** University of Jordan
- **Professor (part time, 1996 to present);** Petra University
- **Professor (Sep. 1996 to Sep. 1997);** University of Science & Technology, Irbid
- **Professor (Sep. 1994 to Sep. 1996);** University of Jordan.
- **Associate Professor (Nov. 1986 to Sep. 1994);** University of Jordan
- **Department Head (Aug. 1987 to Aug. 1989);** University of Jordan.
- **Assistant Professor (Feb. 1982 to Nov. 1986);** University of Jordan.
- **Research Engineer (May 1980 to Aug. 1982);** General American Research Division of GATX Corporation Niles, Illinois, USA
- **Teaching & Research Assistant (Aug. 1976 to May 1980);** UIC, USA
- **Aircraft Maintenance Officer (Oct. 1969 to Jan.1976);** Royal Jordanian Airforce,

CONSULTING EXPERIENCE:

- IN USA
- **Development of thermal comfort computer code fro the Virtual Soldier Program at the Center of Computer Aided Design, University of Iowa, Iowa City, USA.2004-present.**
- **Development of NECAP and SCOUT computer programs for HVAC and energy conservation analyses, GARD, Inc., USA**
- **Energy conservation analyses of the Veterans Administration Hospital, West Side facility, Chicago, Illinois**
- **Energy conservation analyses of the Veterans Administration Hospital, Madison, Wisconsin**
- **Energy conservation analyses of GATC East Chicago Plant No. 2, East Chicago, Indiana**
- **Energy conservation study of the University Hospital, Amman, Jordan**
- **Introduction of fluidized bed combustion technology into GATX Corporation, USA**
- **Design and analyses of a condenser for the dual catalyst water recovery system for the Spacelab, GARD, Inc. USA**
- **Design of the retorting process system to extract oil from oil shale, GARD, FULLER; &EXXON.USA**
- **Simulation and evaluation of evaporation from storage tanks of liquid fuels, GARD, Inc., USA**
- **Development of an energy management reporting system for GATX Corporation, USA.**
- **Development of a computer code for the design of U-Tube coolers used in cement and limes plants, FULLER Company, USA.**

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- *IN JORDAN*
- *Higher Council for Science & Technology*
Chairman of a subcommittee to prepare "STI strategy for Jordan 2012-2016
Chairman of the steering Committee for "Capacity Building of Jordania researchers and proposal Reviewers"
- *Ministry of Higher Education*
Preparation of the engineering syllabi for several higher education institutions, Jordan.
Accreditation of all departments of Mechanical Engineering in Jordan.
- *Ministry of Education*
Revision and Development of Vocation Education and Training Curricula, 1987-1989
Revision and Editing of Several Text Books.
- *Ministry of Energy and Mineral Resources*
Demand Side Management Strategies of Energy Sector for Jordan, RCG/Hagler Baily, & US AID Jordan
- *Ministry of Trade and Industry*
Establishment of several STANDARDS for the Department of Standards,
- *Ministry of AWGAF*
Design check for several HVAC projects for the Ministry of Islamic affairs, Jordan
- *University of Jordan*
Energy conservation study of the Faculty of Engineering and Technology Buildings, Amman, Jordan
- *University of Yarmouk*
Design check and consultant for the mechanical systems of Central Library, Irbid, Jordan, 1997
- *Mutah University*
Several Consultations for the establishment of the Mechanical Engineering Department (Preparation of Curriculum and, Laboratories Equipment), 1984- 1988.
- *Applied Science University*
Planning for the establishment of Engineering Programs at the University, 1992.
- *Private Sector*
Several design projects (Hotels, Restaurants, multistory buildings), 1990-1996.
Design checks on the mechanical and sanitary systems for the Modern School (14,000 m² total area), Amman, Jordan 1995
- *Amman Municipality;*
Design of ventilation system for the Wadi Haddadah Tunnel, Amman/Jordan, 1998.

MAJOR COMMITTEES:

- *Chair, scientific committee, SRSF*
- *Chair, scientific journals committee*
- *Chair, scholarship granting committee*
- *Chair, conference financial support committee*
- *Member of Board of Directors, SRSF*
- *Chair, funding of higher education and scientific research subcommittee, HCST*
- *Member of steering committee of STI status in Jordan, HCST*

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- *University counsel, JU*
- *Deans Counsel, JU*
- *Appointment and Promotion Committee, JU, 2001-2003*
- *Review Committee for faculty affairs regulations, JU, 2002*
- *Founder of the Partnership Council between Faculty of Eng. & Jordanian Industry. JU, 2003*
- *Founder of the Faculty For Factory National program*
- *Energy Policy Committee for JU*
- *Establishing a JU Campus in Aqaba committee. JU, 2002*
- *Chairman of accreditation committee for all Mechanical Eng. Departments in Jordan.*
- *Faculty of Engineering Computer Center Committee, JU*
- *Member, Engineering Students Training committee.*
- *Chairman of Continuing education committee, JU*
- *Graduate studies committee, JU*
- *EU financial assistance to JU program committee*
- *Adviser for Student Societies*
- *Establishing Graduate and Undergraduate Study Plans for Mechanical Engineering Programs in JU, JUST, and Mu'tah Universities.*
- *Establishing Study Plans for Mechanical Engineering Programs in Community colleges.*
- *Chairman of Final Exam Committee for Community Colleges for Many Years.*
- *Establishing Thermal Science Laboratories at JU and Mu'tah Universities.*
- *Reviewing Many Technical Books for Ministry of Education*
- *Member of Energy committee at the Jordan Engineering Council.*
- *Chair or Member of numerous committees for faculty promotions*

AWARDS:

- *Royal golden watch, ranked first at the Royal Military Academy, 1972*
- *Teaching assistantship, University of Illinois, Energy Eng. Dept., 1976 - 77*
- *Research assistantship, University of Illinois, Energy Eng. Dept., 1977 - 80.*

GRANTS:

- *NSF grant (Joint with Prof. H.A Simon) to study flow and heat transfer in coils.*
- *University of Jordan/Deanship of Research grant to study thermal stratification in storage tanks with solar energy application.*
- *Several other University of Jordan grants (relatively small) to support MS theses research.*
- *Aladdin Industries joint with the Higher Council for Science and Technology grant to design and build a domestic water supply system that leads to conservation in water consumption in Jordan.*
- *Deanship of Academic Research grant to design a new solar collector/storage.*
- *Deanship of Academic Research grant to write a textbook titled "Sanitary Systems in Buildings"*

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SPECIAL TRAINING:

- *Large boiler plant management, 1981, USA*
- *Power Co-generation, economic look, 1981, USA*
- *Fluidized bed boilers. 1980, USA.*
- *Project management, 1980, USA.*
- *Power generation plant operation, planning and scheduling, RJAF/Jordan, 1972*
- *Graduates Basic Military Training course, RJAF/Jordan 1972.*
- *Aircraft maintenance course, 1971 USAF/USA.*

ACADEMIC ACTIVITIES:

RESEARCH INTEREST

- *Numerical Fluid Mechanics and Heat Transfer.*
- *Industrial Energy Conservation & Management.*
- *Heat transfer and fluid flow in porous media*
- *Industrial Ventilation systems.*
- *Solar Energy.*
- *Sanitary systems.*
- *Thermal Comfort of Humans.*

SUPERVISED GRADUATE RESEARCH

A: MSc.

- *Performance Optimization of an Oxygen Plant.*
- *Non-similar Solution of Mixed Convection from a Triangular Fin Embedded in a Porous Medium.*
- *Laminar Flow and Heat Transfer in Helical Coils.*
- *Heat and Mass Transfer in Porous Media.*
- *The effect of Surface Mass Transfer on Free and Mixed Convection over an Inclined Flat Plate Embedded in a Saturated Medium.*
- *Free Convection from Inclined Permeable Walls Embedded in a Variable Permeability Porous Media With Lateral Mass Flux.*
- *Self-Similar Solutions for Axisymmetric Jets Using Two Turbulence Models.*
- *Designing, Building, and Testing of a solar collector using curved tubes filled with porous medium.*

B: PhD.

- *Design criteria, control, and performance of steam turbines powered from low-grade heat source in a combined power and power (CPP) plant. Joint supervision with Professor V. Bhinder from University of Hertfordshire, England.*
- *Design criteria, control, and performance of gas turbines powering a combined power and power (CPP) plant. Joint supervision with Professor V, Bhinder from University of Hertfordshire, England.*
- *Laminar flow and heat transfer in curved tubes filled with saturated porous medium.*

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COURSES TAUGHT WITHIN ENGINEERING SCHOOLS:

- *Heat Transfer (introductory, intermediate, and advanced.)*
- *Fluid Mechanics (introductory, intermediate, and advanced.)*
- *Thermodynamics (introductory, intermediate, and advanced.)*
- *Heating Ventilating & Air-conditioning.*
- *Optimization in the design of mechanical systems.*
- *Solar Energy.*
- *Energy Conversion and conservation.*
- *Internal Combustion Engines.*
- *Numerical Methods in Mechanical Engineering (Undergraduate.)*
- *Numerical Methods in Mechanical Engineering (Graduate.)*
- *Computational Fluid Dynamics (Graduate.)*
- *Convection Heat Transfer (Graduate.)*
- *Boiling and Two Phase Flow (Graduate.)*
- *Heat Transfer in porous media (Graduate.)*
- *Several Laboratory Courses.*

CONTINUING EDUCATION TO PRACTICING ENGINEERS:

- *Energy Conservation in Buildings.*
- *Energy Conservation in Power Plants.*
- *Environmental Control.*
- *Pollution Control in Traffic Tunnels.*
- *Fuel Burner Design and Maintenance.*
- *Refrigeration and Air-conditioning.*
- *Sanitary Systems for Buildings*
- *Heat exchangers, Design, Performance, Operation and Troubleshooting.*
- **Series of seminars “how to review a research proposal”, HCST**

LECTURES TO GENERAL PUBLIC

- *Global Warming (many in different places.)*
- *Solar Energy; A Future Technology (many in different places.)*
- *The Divine Proportion(many in different places.)*
- *Scientific Research in Jordan (upper parliament)*
- *Obstacles in the way of Scientific researchers in Jordan (Yarmouk University)*
- **الدعم الحكومي في تشجيع القطاع الخاص للاستثمار في البحث والتطوير، مؤتمر عقد في جامعة الأميرة سمية،**

•2011

CONFERENCES & MAJOR MEETINGS ATTENDED:

- *First National Numerical Heat Transfer Conference, College Park, Maryland, USA, 1979*
- *ASME International Heat & Mass Transfer, Orlando, Florida, USA, 1980.*
- *ASME Meeting, Milwaukee, Wisconsin, USA, 1981.*

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- *ASHRAE Meeting, Chicago, Illinois, USA, 1981.*
- *ASME Winter Annual Meeting, Washington DC, USA, 1981.*
- *Solar Ponds" Royal Scientific Society (RSS), Jordan 1983.*
- *ASME Summer Annual Meeting, Niagara Falls, USA, 1984.*
- *Energy for Rural and Island Communities, Scotland, 1985.*
- *Industry-Military Cooperation, Chamber of Industry Jordan, 1985.*
- *Iraqi Conference on Engineering, Baghdad, Iraq, 1985 General Conference of the).*
- *International Association for the Exchange of Students For Technical Experience (IAESTE): Austria (1989.)*
- *Third Arab Engineers Conference, Amman, Jordan, 1988.*
- *International Conference on Refrigeration & Air-conditioning, 1989.*
- *Second International Conference on Refrigeration & Air-conditioning, 1992.*
- *International Renewable Energy Conference, 1992.*
- *First International Conference in Mechanical Engineering, 1993.*
- *Second International Conference for Mechanical Engineering, 1997.*
- *Seventh AIAA/ASME Joint Thermophysics and Heat Transfer Conference, NM, USA, 1998.*
- *Second International Non-Renewable Energy Sources Congress, Tehran, Iran, 1998.*
- *International Conference on Energy and Environmental, Amman, Jordan, 2000*
- *Rotary Conferences; 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009.*
- *Virtual Engineering Conference COMEC2011, Brazof, Romania, 2011*
- *Merit review principles, Riyadh, 2012*

VISITS TO INTERNATIONAL ACADEMIC INSTITUTIONS:

- *IMPERIAL COLLEGE, LONDON, UK.*
- *HATFIELD INSTITUTE, HATFIELD, UK.*
- *ENDOGEN UNIVERSITY, ENDOGEN, THE NETHER LAND.*
- *UNIVERSITY OF IOWA, IOWA, USA.*
- *PURDUE UNIVERSITY, WEST LAFAYATE, USA.*
- *EMBRY RIDDLE AERONAUTICAL UNIVERSITY, FLORIDA, USA.*
- *CENTRAL FLORIDA UNIVERSITY, FLORIDA, USA.*
- *AMERICAN UNIVERSITY AT SHARJAH, UAE.*
- *UNIVERSITY OF SHARGAH, UAE.*
- *ALEXANDRIA UNIVERSITY, EGYPT.*
- *ASIUT UNIVERSITY, EGYPT.*

BOOKS:

- *SANITARY SYSTEMS IN BUILDINGS.*

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PUBLISHED RESEARCH:

- INTERNATIONAL:

- **Nasri Rabadi**, "Jordan's Diplomatic Efforts to Enhance S&T Collaborative Activities with the Rest of the World," to be presented at the INTERNATIONAL WORKSHOP ON 'SCIENCE AND TECHNOLOGY DIPLOMACY FOR DEVELOPING COUNTRIES, TEHRAN, IRAN, 13-16 MAY 2012
- **Nasri Rabadi and Ghassan Halasa**, "Buildings Space Heating Using Wind-Diesel Hybrid System," Global Journal of Researches in Engineering" -J Volume 12 Issue 1 Version 1.0 March 2012.
- **Nasri Rabadi**, "Developing a Software to Predict Thermal comfort for Humans in Action," Journal of Mechanical and Industrial Engineering, Vol. 5 No. 4, Aug. 2011.
- **Omar Jdaittawi and Nasri J. Rabadi** "Laminar Flow and Heat Transfer in Curved Channels Filled with Saturated Porous Media" accepted for publication to Intl. J. of Solar Energy (2011).
- **Karim Malek, Amos Patrick, Molly Patrick, Nasri Rabadi**, "Interactive 3D Dissection System," First Jordanian European International Medical Informatics and Biomedical Engineering Symposium, IMIBE-2006.
- **Nasri J. Rabadi and Saed A. Mismar** "Enhancing Solar Energy Collection by Using Curved Flow technology Coupled with Flow in Porous Media: An Experimental Study" Intl. J. of Solar Energy, Vol. 75, Issue 3, pp 261-268 (2003).
- **Hamdan, E.M. and Rabadi, N.J** " Free Convection from Inclined Permeable Wall Embedded in Variable Permeability Porous Media with Lateral Mass Flux," Journal of Petroleum Science and Engineering, 26, 241-251, USA, 2000
- **Rabadi, N.J. and Hamdan, E.M** "The Influence of Variable Permeability and Thermal Conductivity Porous Medium Embedding an Inclined Permeable Wall on Free Convection from That Wall," Proceeding of the seventh AIAA/ASME Joint Thermophysics and Heat Transfer Conference, NM, USA, 1998.
- **Ghazzawi, N.A. and Rabadi, N.J** "Self-Similar Solutions for Axisymmetric Jets Using Two Turbulence Models" INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING, Vol. 37, 1951-1930, England, 1994.
- **Rabadi, N.J., Saad, M.A., and Zu'bi, A.** " The Potential and Strategies for Demand-Side Management Within the Industrial Sector in Jordan; Part I,"ENERGY CONVERSION AND MANAGEMENT, an International Journal, Vol. 32, No. 6, USA, 1991
- **Rabadi, N.J., Al-Nasr, M.M. and Hijazi, M.A.** " The Potential and Strategies for Demand Side Management within the Industrial Sector in Jordan; Part 2, "ENERGY CONVERSION AND MANAGEMENT, an International Journal, Vol. 32, No. 6, USA, 1991.
- **Hijazen B.B. and Rabadi, N.J.,** "Computation of Axisymmetric Non-Reacting Jets." INTERNATIONAL JOURNAL FOR HEAT AND TECHNOLOGY, Vol. 1-2, No., 11, Italy, 1991.
- **Rabadi, N.J.,** "Heat Transfer in Coils; Uniform Heat Flux," INTERNATIONAL JOURNAL FOR HEAT AND TECHNOLOGY, Vol. 18, No. 34, Italy, 1990.
- **Budinikas, P., Rasouli, F., Rabadi, N.** "Development of a Condenser for the Dual Catalyst Water Recovery System,' Report P epa red for AMES Research Center, NASA, Under Contract NAS2-110~S 1983.
- **Rabadi, N.J., Simon, H.A., & Chow, J.C.F.,** "Heat Transfer in Pulsating Flow in Coils," INTERNATIONAL JOURNAL OF HEAT & MASS TRANSFER, Vol. 2, USA, 1982.

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- **Rabadi, N.J.**, "Fluidized Bed Combustion," GARD Technology Report, No. Cl - 49, USA, 1981.
- Minkowycz, W.J., **Rabadi, N.J.**, & France, D.M., "Dynamics of Inert Bubbles in Forced Convective Systems," INTERNATIONAL JOURNAL OF HEAT & MASS TRANSFER, Vol. 24, USA, 1981.
- **Rabadi, N.J.**, Simon, HA. & Chow, J.C.F., "Numerical Solution for Fully Developed, Laminar, and Pulsating Flow in Curved Tubes," NUMERICAL HEAT TRANSFER, Vol. 3, PP 225- 239, USA, 1980.
- **Rabadi, N.J.** Chow, J.C.F, and Simon, HA. "An Efficient Numerical Procedure for the Solution of Laminar Flow and Heat Transfer in Coiled Tubes," NUMERICAL HEAT TRANSFER, Vol. 2, pp. 279-289, USA, 1979.

- REGIONAL:

- Ghazzawi, N.A., **Rabadi, N.J.** and Hijazin, B.B. "Solutions for Laminar Compressible Axisymmetric Jets Issuing into Stagnant and Moving Mediums," JOURNAL OF KING ABDULAZIZ UNIVERSITY, Vol. 10, No. 2, pp. 35- 63, SA, 1998.
- **Rabadi, N.J.** and Dwiek, Y.J. "Local Non-similarity Solutions for Mixed Convection Flow with Lateral Mass Flux Over an Inclined Flat Plate Embedded in a Saturated Porous Medium," J. OF KING SAUD UNIVERSITY, Vol. 7, eng. Sci. 2, pp 267-287, SA, 1995.
- Dwiek, Y.J., **Rabadi, N.J.**, and Ghazzawi N.A, "The Effect of Lateral Mass Flux on Free Convection from an Inclined Flat Plate Embedded in a Saturated Porous Medium," THE ARABIAN JOURNAL FOR SCIENCE AND ENGINEERING. Vol. 19, No 3, SA, 1994.
- **Rabadi, N. J.**, & Saad, M., "Thermal Stratification in Storage Tanks," JOURNAL OF ALEXANDRIA UNIVERSITY, Vol. 29, No 3, Egypt, 1990.
- **Rabadi, N.J** & Rawabdeh, I., "Involvement, of Industries in Engineering Education; A Case Study of Jordan, "Engineering Education, University of Shargah,Shargah, UAE, 2003.

- أ.د نصري الرضاوي "وسائل تبادل الخبرة البحثية بين الجامعات والمجتمع المحلي وفقا لاحتياجاته: التجربة الأردنية" الدورة التدريبية شبه الإقليمية حول الاستثمار في الأبحاث الجامعية ودورها في تنمية المجتمع الشارقة – دولة الإمارات العربية المتحدة, 24-26 أكتوبر 2011.

- LOCAL:

- Abu-Rumman, N., **Rabadi, N.J.** and Rawajfeh, K.M "Non-Similar Solution for Mixed Convection from Inclined Walls Embedded in Porous Medium, "DIRASAT, Vol. 21 B, Jordan, 1994.
- Hijazen B.B. and **Rabadi, N.J.**, "Computation of Axisymmetric Turbulent Non-Reacting Jets," DIRASAT. Vol. 3, No., 20B, Jordan, 1993.
- Awwad, R.K. and **Rabadi, N.J.**, "Investigation of the Efficiency of an Oxygen Plant through Computer Simulation," PROCEEDING OF THE SECOND INTERNATIONAL CONFERENCE ON REFRIGERATION AND AIR-CONDITIONING, Jordan, 1992.
- **Rabadi, N.J.** and Saad, M., "Performance of Non-Metallic Flat Plate Solar Collectors," DIRASAT, Vol. 17, No. 2, Jordan, 1990.

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- **Rabadi, N.J.**, "Heat Transfer in Pulsating Flow in Coils; Constant Wall Temperature." *DIRASAT*. Vol. No. 18B, Jordan, 1990.
- **Rabadi, N.J.**, "On Heat Transfer in Coils," *DIRASAT*, Vol. 16, No. 5, pp 133, Jordan, 1989.
- **Rabadi, N.J.**, "A New Concept for Evaporative/ Condensative System for Water Recovery from Human Waste," *DIRASAT*, Vol. 13, Jordan, 1986.
- Saad, M., Hijazi, M., Habali, S, **Rabadi, N.J.**, "An Inexpensive and Reliable Solar Water Heater for Jordan," *DIRASAT*, Vol. 12, Jordan, 1985.
- **Rabadi, N.J.**, "Integration of Vapor Compression Distillation Unit with Dual Catalyst Water Recovery System," *DIRASAT*, Vol. 12, Jordan, 1985.
- **Rabadi, N.J.**, "Integration of Thermoelectric Integrated Membrane Evaporator with Dual Catalyst Water Recovery System," *DIRASAT*, Vol. 12, Jordan, 1985.
- **Rabadi, N.J.** and Al-Saad, M.A "Conservation as Energy Resource" Presented in The expert Group Meeting on Integrated Energy Planning, sponsored by ESCHEW, United Nations, Jordan, 1985.

SOCIETY MEMBERSHIPS:

- **American Society for Mechanical Engineers.**
- **American Society for Heating, Ventilating, and Air-Conditioning Engineers.**
- **Jordanian Engineering Council**
- **Rotary International**

REFERENCES:

- **HE Professor Walid Maani, Minister of higher education and scientific research and Ex President of the University of Jordan, Tel 962-777-904-000**
- **Dr. Munif Hijazi, JTTCG, Amman, Jordan, Tel. 079-5534516**
- **Professor Jamil Smadi, University of Jordan, Amman, Jordan, Tel 962-777-427-000.**
- **Professor Karim Malek, University of Iowa , Iowa City, Iowa, USA Tel: 1-319-400-0278**