

# AWNI ALKHAZALEH

**PhD in Mechanical Engineering / Thermals and Energy**

**Amman-Jordan**

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## PERSONAL INFORMATION

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## EDUCATION

**PhD's in Mechanical Engineering / Thermals and Energy** (Full Time)  
**The University of Bolton, Greater Manchester, United Kingdom** (Jan 2015 – Nov 2018)

**Thesis Title:** Thermal Energy Storage and Fire Safety of Building Materials.

**Research objective:** This research aims to develop fire safe and energy efficient building materials using phase change materials and flame retardants. Preparation, Thermal, Energy storage, Mechanical, Morphology and Flammability properties of materials have been studied.

**Master's Degree in Mechanical Engineering / Thermals, Department of Mechanical Engineering, Faculty of Engineering, University of Jordan, Amman, Jordan, Thesis Title:** Modeling and Design of Smoke Control System for Regular Large Atrium in Mercantile Buildings in Jordan. (2012-2014).

**Bachelor's Degree in Production Engineering and Machines, Department of Mechanical Engineering, Faculty of Engineering, Albalqa Applied University, Al-Salt, Jordan. (2000-2005)**

**Relevant Courses:** Heat and mass transfer, Strength of materials, Mechanical fluid, Solar energy, Smoke control system, Fire behaviour of materials, Structural design for fire safety, Energy management, Engineering fundamentals, Materials science, Thermodynamic, Engineering measurements, Mechanical hydrolic, Fire dynamic and combustion.

## RESEARCH INTERESTS

Energy, Renewable energy, Thermal energy storage, Phase change materials, Materials science, Materials fire science, Flammability and Fire safety engineering.

## CONFERENCES

1. Occupational Health and Safety Conference, 26-27 October, 2013, Amman-Jordan
2. SCI Materials conference, 5 November 2015, Glasgow, UK
3. Postgraduate Research Students' Society Conference, 2016, Bolton, UK
4. Energy and Fire Materials Conference, San Francisco, USA, 2017

5. International Conference on Renewable Energy Resources and Applications, Paris, France, 2017. (Best Paper Award)
6. Flame Retardant Polymeric Materials, Manchester, UK, 2017
7. UK Energy storage conference, 20-22 March, 2018, Newcastle-UK
8. 14th International Conference on Energy Storage, 24-28 April, 2018, Turkey

## PUBLICATIONS

- [1] **Alkhazaleh, A. H.** Isopropyl palmitate integrated in plasterboard for low temperature latent heat thermal energy storage, International Journal of Energy Research (2020). Accepted. (Q1 Journal, impact factor: 3.74 (2020))
- [2] **Alkhazaleh, A. H.** Preparation and characterization of isopropyl palmitate / expanded perlite and isopropyl palmitate / nanoclay composites as form-stable thermal energy storage materials for buildings, Journal of Energy Storage 32 (2020) 101679. (Q1 Journal, impact factor: 3.76 (2020))
- [3] ALMashaqbeh, S., Munive-hernandez, J.E., Khan, M.K., **Alkhazaleh, A.**, 2020. A System Dynamics Simulation Model for Environmental Risk Assessment at Strategic level in Power Plants. International Journal of Reliability and Safety, vol.14(1), pp. 58-84.
- [4] **Alkhazaleh, A. H.** and Kandola, B.K. "Thermal and Flammability Properties of Paraffin/Nanoclay Composite Phase Change Materials Incorporated in Building Materials for Thermal Energy Storage", International Journal of Energy and Power Engineering, Vol:4, No:6, 2017
- [5] Kandola, B.K., **Alkhazaleh, A.H.** and Graham J. Milnes. "The Fire Behaviour of Gypsum Boards Incorporating Phase Change Materials for Energy Storage In Building Applications", Fire and Materials Conference, San Francisco, USA, 2017
- [6] **Alkhazaleh, A. H.** and Duwairi, H. (2015), "Analysis of Mechanical System Ventilation Performance in an Atrium by Consolidated Model of Fire and Smoke Transport Simulation", International Journal of Heat and Technology, vol. 33 (2015), no. 3, pp. 121-126.
- [7] **Alkhazaleh, A. H.** and Duwairi, H. (2014) "Modeling and Design of Smoke Control System for Regular Large Atrium Installed in Mercantile Buildings in Jordan", *master thesis, university of Jordan.*
- ✓ **A reviewer for Solar Energy journal** (Q1 Journal, impact factor: 4.60 (2020))

## TEACHING SKILLS

- Lead seminars, supervise undergraduates in the laboratory and deliver lectures in mechanical engineering modules.
- Knowledgeable of research methodologies and information collection as well as writing and presenting reports.
- Make presentations to both academic and non-specialist audiences.

- Responsible for travelling to internal conferences and attend engineering events and workshops.

## EXPERIENCE

### **Assistant Professor, Mechanical Engineering Department Albalqa Applied University, Jordan**

(Jan 2019 - Now)

- Lecture 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> year students on various mechanical engineering modules such as: Heat and mass transfer, Thermodynamic, Strength of materials, materials science, Modeling of fire and smoke control system, etc,
- Supervise 5<sup>th</sup> year students on their graduation projects which are related to the thermal research areas.
- Head of several committees to establish energy and heat transfer labs by determining the specifications for the energy and heat transfer equipment, which are used to study the energy storage and heat transfer of materials.

### **Teaching Assistant, Mechanical Engineering Department The University of Bolton, United Kingdom**

(Oct 2015 – Mar 2018)

- Lectured 1<sup>st</sup> and 2<sup>nd</sup> year students on various mechanical engineering modules including strength of materials and mechanical fluid.
- Assisted in teaching undergraduate courses, and supervised practical work, advising on skills, methods and techniques.
- Conducted tutorials with students, marked assignments and created module handouts for lectures.
- Helped with ongoing development and design of the curriculum, created lesson plans, and wrote formative assessments to assess students learning.
- Prepared the required materials for the classes including preparing the presentation slides for lectures.
- Assisted faculty members with classroom activities including grading assignments, and monitoring students.
- Cooperated with professors to carry out research on enhancing the thermal energy storage of materials.

### **Mechanical Engineer, Head of Mechanical Lab in Laboratories Department, Ministry of Interior, Jordan**

(Nov 2005- Dec 2014)

1. **Head of mechanical engineering department.** *The duties of this position are:*
  - A. Deliver the training courses for the staff.
  - B. Study and evaluate the energy auditing for buildings.
  - C. Team leader for design of fire fighting systems for buildings and testing these systems according to the international standards.
  - D. Distribute the duties of work on members according to their qualifications.
2. **Mechanical engineer.** *The duties of this position are:*

A. Design of fire fighting systems according to the international standards (**BS, NFPA, ASHRAE**), these systems include:

1. Many types of sprinkler systems (dry, deluge, pre-action, wet)
2. Clean agent systems (FM 200, CO<sub>2</sub>, NAFS-111).
3. Deluge foam-water systems
4. Water spray fixed systems
5. Pressurization systems for stairs in high rise buildings
6. Smoke control systems for atriums
7. Mechanical ventilation for cellars floors

### **TRAINING COURSES**

1. Foundation course of fire safety in buildings, 6 November, 2005 – 20 April, 2006, Amman-Jordan.
2. Course in prevention from fire (first place), 18 June - 13 July, 2006, Amman-Jordan.
3. Car Park Ventilation, 21 June, 2006, Amman- Jordan.
4. Course in investigation in the causes of fire, 31 August - 25 September, 2008, Amman-Jordan
5. Basic course to address the incidents of explosives in the Regional Centre of the International Organization of Civil Protection, 1-19 November, 2008, Cairo-Egypt.
6. Course in LPCB laboratories, this course discussed the energy and fire fighting systems, 12-17April, 2011, London-UK.
7. Course in the design and installation of solar energy panels (Photovoltaics), September, 2019, university of Jordan, Amman-Jordan.
8. Course in the design and installation of wind energy, September, 2020, university of Jordan, Amman-Jordan.

### **PERSONAL SKILLS**

- Interact and communicate effectively with people from diverse background, highlighting main points and reaching a solution to a problem in the most suitable and practical manner. .
- Train and schedule employees effectively. In addition, I am an enthusiastic, self-motivated, reliable, responsible, hardworking person and comfortable dealing with different situations. Moreover, I have high skills in the research and development.

### **SKILLS**

#### **Languages**

Arabic: Native  
English: Excellent

#### **Computer**

- Proficiency in Word, Excel, Power Point and Photo Processing.
- CFAST software
- TA universal Analysis
- Solidworks
- AutoCAD
- MATLAB