



# MOHAMMAD ALMAJALI

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## Summary

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Dr. Mohammad Almajali has an extensive industrial and academic experience. He started his career as an Aeronautical Engineer working on aircraft maintenance and got promoted until heading the maintenance division. Dr. Almajali has solid background in Aircraft Maintenance, Teaching, Training and Administration. He supervised many engineering projects and was a member in many committees for leasing, purchasing and integrating and updating engineering and high technology systems. In academic arena, Dr. Almajali taught many Engineering (Aerospace and Mechanical) courses in several Universities including HCT in UAE. He was assigned also as a head of mechanical engineering department in Mutah University where he was able to update the mechanical program and participated in many projects funded by EU to enhance the higher education capabilities in Jordan

## Skill Highlights

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- Teaching by hands
- Maintenance Supervision
- Project management
- Creative design
- Aviation
- Complex problem solver

## Education

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PhD: Mechanical Engineering – 2010 Department of Aerospace and Mechanical Engineering/ **University of Dayton**, OH-USA. 4/4 GPA (Distinguished)

M. S: Aeronautical Engineering – 2006 US Air Force Institute of Technology (**AFIT**), W. P. A. F. B OH-USA. 3.85/4 GPA (Honored)

B. S: Mechanical/Aerospace in Engineering – 1989 **JUST**, Irbid, JORDAN. 79/100 GPA (Very good)

## Experience

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**Maintenance Unit and Engineering Office Manager** - 09/2021 to present

**Mutah University**, Karak-Jordan

- In addition to teaching as an assistant professor at MU, I am assigned as the manager of both the Maintenance Unit and the Engineering office where I had the chance to supervise and guide Engineers and Technicians in planning, implementation and execution of the maintenance tasks for all faculties and units in the University.
- Managed team of 158 employees including technician and Engineers, overseeing the hiring, training, and professional growth of employees.
- Monitored system functioning closely, troubleshooting and resolving issues
- Developed project concepts and maintain optimal workflow.
- Worked with senior developer to manage large, complex design projects for corporate clients.

- Carried out quality assurance tests to discover errors and optimize usability.
- Follow up with the consultations and determined needs through team management for all projects needed in the University.
- Follow-up of the engineers in the office in terms of designing and identifying specifications for the tenders then following up their implementation and supervising them until accepting the deliverable
- Applied expert knowledge for daily completion of tasks and streamlining workflows.

#### **Assistant Professor - 01/2016 to present**

##### **Mechanical Engineering Department- Mutah University, Karak-Jordan**

- Supervise and advise several master students in Mechanical Engineering and System Engineering programs as well as Senior design projects for the undergraduate students.
- Member in several committees to enhance the current programs such as the study plan program committee. Headed the program committee to establish new program titled “Design and Manufacturing Technology”.
- Member in ABET committees for Mechanical engineering and system engineering departments.
- Won Erasmus plus project titled “Promotion Youth Employment in Remote Area in Jordan” funded by EU with around 690,000-euro budget. **This project was targeted to local community to enhance the employability in the remote area in Jordan focusing on uneducated, unemployment and women.** I was the technical manager for this project. Additionally, I was involved in several similar project coordinated by other Jordanian and EU institutions such as Egreen, Food, VTC, SEMSEM, INNVENT and MorThanAJob.
- Chair the department for one year to be able to develop the existing program and establish new programs
- There are several tasks required from the university professor such as teaching the students how to apply to main principles and techniques to solve the real-engineering problems.
- Worked with distance learning technology to facilitate online classroom environments.
- Administered assessments and standardized tests to evaluate student progress.
- Helped students understand topics by initiating and moderating classroom discussions.

#### **Assistant Professor - 01/2018 to 09/2019**

##### **Mechanical and Mechatronic Engineering Department- Higher Colleges of Technologies, Dubai, UAE**

- Follow up with two main courses as system wide course leader (sophomore design project and Material selection and testing courses).
- Track coordinator for design track courses in all 17 HCT Campuses.
- Attended several personal development courses in HCT
- Member in several committees such as Program Advising Committee. My students in HCT participated in different design competitions and won several rewards. I was also a member in Jury of Science Thinking completion in UAE in 2019.
- Worked with distance learning technology to facilitate online classroom environments.
- Met course and department instructional goals by integrating key competencies into lesson plans.
- Worked with distance learning technology to facilitate online classroom environments.
- Administered assessments and standardized tests to evaluate student progress.
- Helped students understand topics by initiating and moderating classroom discussions

## **Chief of Maintenance - 05/2014 to 01/2016**

### **Air Lift Wing, Royal Jordanian Air Force, Amman-Jordan**

- Supervision and overall control of all aspects of the Aircraft Engineering Group, to meet the technical specification and internal quality requirements. The main A/C belong to ALW are: C-130, Super Puma, Blackhawk (S-70), EC-634 and CASA 212,
- Lead a technical team to upgrade (EC 635) helicopter fleet to be integrated with armament and new communication system by Paramount Group Company in South Africa.
- Evaluated the new developed A/C **AHRLAC** (Advanced High Performance Reconnaissance Light Aircraft) in early stage. This A/C is a South African light [reconnaissance](#) and [counter-insurgency aircraft](#) developed by a joint venture between the [Paramount Group](#) and [Aerosud](#).
- Technical advising in purchasing and acceptance committee to deliver a Black Hawk aircraft to RJAF.
- Monitored system functioning closely, troubleshooting and resolving issues experienced with the Aircraft.
- Provided excellent leadership skills to maintain steady and productive operations.

## **Head of Aerospace Section - 02/2013 to 05/2014**

### **King Abdullah II Design and development Bureau KADDB, Amman-Jordan**

- KADDB is the Jordanian Research, Design and Development entity created to provide solutions for Jordan Armed Forces and defense Agencies. Assigned as a head of Aerospace Section to follow up with the Aerospace projects
- Supervised engineers holding B.S and M.S who involved in several projects including Unmanned Ground Vehicle, UAVS, Target Drones, and software and embedded system such as **Explosive Ordnance Disposal (EOD), Mini UGV, Quad-rotor and Mini Unmanned Aerial System MUAS**. I headed a team for designing the composite structure for the fixed wing Unmanned Vehicle.
- Supervised several undergraduate projects for students from Jordanian Universities
- Headed a team for designing the composite structure for the fixed wing Unmanned Vehicle.
- Monitored system functioning closely, troubleshooting and resolving issues.
- Managed team, overseeing the hiring, training, and professional growth of employees.
- Applied expert knowledge for daily completion of tasks and streamlining workflows.

## **Chief of International Cooperation Branch - 01/2011 to 02/2013**

### **Directorate of Strategic Planning- Jordan Armed Forces Head Quarters (JAF)- Amman-Jordan**

- Member in Different Committees regarding Cooperation Defense
- Proposed different kinds of Draft Agreements between Jordan and other Countries such as; USA, Saudi Arabia, France, Bahrain, Canada, South Korea, Australia, UAE, Brunei, ...etc.
- Guided teams in planning, implementation and execution of the activities to be conducted with other Armed Forces
- Attended several meeting in Jordan and other countries regarding the activities to be conducted between Armed Forces such as training, operations, etc.

## **PhD Candidate and Research Assistant- 09/2006 to 05/2010**

### **Aerospace/Mechanical Engineering Departement- University of Dayton- Dayton-OH-USA**

- Research Assistant and PhD candidate sponsored by Jordan Armed Forces (JAF) and Great Dayton Area Graduate Students Institute (DAGSI).
- Worked on a big project trying to solve the issues facing the soldiers during their deployment in a hot and humid environment by developing a new device to cool their garment. Specifically, for the American soldiers in Iraq. **Using light hybrid material containing Carbon Foam**

- Developed a numerical model for two energy equation by implementing a fast computational fluid dynamic software program (FLUENT).
- Designed hybrid foam by enhancing the thermo-mechanical properties of carbon foam using copper electroplating technique. And carbon foam infiltrated with phase change material (PCM) for energy heat storage.
- Conducted experimental and numerical works on pristine and hybrid foams infiltrated with PCM under constant and uniform heat pulse.
- Designed a thermoelectric cooler (TEC) system for cooling vest application using heat exchanger and heat sink made of different materials (aluminum fins, pristine and hybrid foams) and different configurations (small and big holes and channels).
- Maintained regularly scheduled hours in order to assist and advise students on class, programme, academic and vocational plans

**Master of Science Student Candidate-** 08/2004 to 09/2006

**Aeronautical Engineering Department. US Air Force Institute of Technology (AFIT). Dayton OH, USA**

- Completed my M.S in Aeronautical engineering sponsored by Royal Jordanian Air force. I worked on a problem experienced on the GE engines installed on F-16 and Black Hawk A/C. This project was funded by GE and US Air Force Laboratory Research (AFLR). The issue in the above engines was a noticeable crack initiation and nucleation in the turbine stator blades.
- Conducted an experimental research on fretting fatigue of titanium alloy using Phase change angle between axial and normal loads.
- Developed a numerical model for contacting load mechanism by implementing ABAQUS software package

**Maintenance Officer-** 02/1990 to 08/2004

**Royal Jordanian Air Force, Amman Jordan**

- Head of rotary wing maintenance branch to supervise and lead engineers and technicians to conduct the preventive maintenance and repair the Royal Aircraft.
- Assigned in Royal squadron to supervise and lead engineers and technicians to conduct the preventive maintenance and repair the Royal Aircraft.
- Assigned as head of engine shop, E&I shop and 1<sup>st</sup> line officer. Worked on different kind of A/C such as: **C-130, CASA, Super Puma, Blackhawk and Dovehaveland.**
- **One of the main achievements** was returning back the old and grounded A/C Dovehaveland to flying status after more than 8 months on continuous works.

**Part time job:**

- **2012 for Amel advance group in Saudi Arabia:** Evaluate two tenders: the 1<sup>st</sup> one is to establish for Royal Saudi Land Forces, within 24 months, a three (3) buildings with the installation and operation of an integrated Light Arms Simulator, equipped with simulation software and documents regarding operating manual and maintenance, and to supply the required spare parts. The 2<sup>nd</sup> one is to asses a tender for Saudi Air Force to upgrade their bell helicopters B212. The evaluation reports for those tender are available upon request.
- **2014 Hashemite University: Teaching several course in Mechanical department.**

## • Languages

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- Arabic – Native
- English – Fluent

## Undergraduate and post graduate Courses

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- **Hashemite University:** Finite Element Analysis (FEA), Theory of Machine and Strength of Material
- **Mutah University:**
  - a. Undergraduate (Mechanical): Strength of Material, Numerical Methods, Theory of Machine, Mechanical Vibration, Maintenance Management, Dynamic and Labs related to the given courses.
  - b. Undergraduate (system engineering): Engineering Analysis and numerical methods and Human factors.
  - c. Graduate: Advanced Mathematics Engineering, Stress Analysis, Advanced Numerical Analysis and Energy Management
- **HCT (UAE):** Applied Mechanical Vibration, Project management, Mechanics of Material, Mechanical Design, Sophomore Design project, Manufacturing Technology, Selection Material and Design Thinking

## Professional Affiliations

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- Member in Sigma Gamma Tau (Aerospace Sciences Honor Society) since 12th of May 2005 (at AFIT).
- Member in American Carbon Society since 2007.
- Member in Society for the Advancement of Material and Process Engineering, SAMPE® since 2010.
- Member in Jordanian Engineering Syndicate

## Selected Training Course

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- 1993 Special English course in Lackland AFB in San Antoni TX USA.
- 1993 Blackhawk maintenance course in Kirtland AFB in Albuquerque NM/ USA.
- 1995 Officer Basic course/ King Hussain College/ Jordan
- 1999 S-70 Airframe and Powertrain Systems FAM course. Flight Safety
- 2000 Staff college at King Hussain College/ Jordan
- 2001 Senior Staff Course/ King Hussain College/ Jordan.
- 2002 Maintenance Aircraft Familiarization. Flight Safety FL/USA
- 2002 Aviation Safety Awareness. Civil Aviation Authority/ Jordan
- 2014 The Defense Technology Course. KADDB/ Jordan.
- 2018 Participated and supervised design project in Innovation by Engineering students HCT-FUJERA/UAE
- 2018 Control System Design with MATLAB and Simulink - HCT-DUBAI/UAE
- 2018 Participated in GeTex exhibition held at World Trade Center
- 2019 PMP Course at HCT/Dubai UAE

## Reports

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- **M. Almajali.** "Engineered Carbon Foam for Temperature Control Applications". Ph.D Dissertation.
- **M. Almajali** and S. Mall." Effects of Phase Difference Between Axial and Normal Loads on Fretting Fatigue Behavior of Titanium Alloy" Master Thesis at AFIT.

## Reviewed Papers

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1. **M. Almajali**, K. Lafdi, and S. Shaikh. "Interfacial and capillary pressure effects on the thermal performance of wax/foam composite. *Journal of Applied Physics* 102, 033506 (2007).
2. K. Lafdi, **M. Almajali**, and O. Huzayyin, "Thermal Properties of Copper Coated Carbon Foams". **Carbon**, 47; 2620-2626, 2009.
3. **M. Almajali** and K. Lafdi. " Assessment of carbon foam geometry during coating process". **Carbon**, 48 (2010) 4238-4247
4. **M. Almajali** , K. Lafdi, Paul, Ozden Ochwa. " Mechanical Properties of Copper Coated Carbon Foams". **Carbon**, 48; 1604-1608, 2010.
5. **M. Almajali**, K. Lafdi, and Paul, "Effect of copper coating on infiltrated PCM/foam" **Energy Conversion and Management** (2013), pp. 336-342.
6. D'Angelo<sup>1</sup>, **M. Almajali**, K. Lafdi, A. Delort, and M. Elmansori." Augmented Cooling Vest System Subassembly: Design and Analysis": *Journal of Energy Conversion Management* (2014); 79:140–145.
7. M. Almajali and A. Al-Mahadin, "Thermal Conductivity of Carbon Foam Assuming Spherical Unit Cell," *2019 Advances in Science and Engineering Technology International Conferences (ASET)*, Dubai, United Arab Emirates, 2019, pp. 1-4
8. **A. Al-Mahadin and M. Almajali**, "Simplified Mathematical Modelling of Wing Tip Vortices," *2019 Advances in Science and Engineering Technology International Conferences (ASET)*, Dubai, United Arab Emirates, 2019, pp. 1-6
9. **Almajali M**, Mall S, Almahadin A (2019) Fretting Fatigue Behavior Under Phase Difference Between Axial and Contact Loads. *Sch J Appl Sci Res* Vol: 2, Issu: 5 (16-22)
10. **Mohammad Almajali**, Intruding Thermal Insulation and Teaching by Hand Concepts In Engineering Program Of Jordanian Universities, *INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH* VOLUME 9, ISSUE 10, OCTOBER 2020, pages 74-79.
11. **Almajali, M.**, and Quran, O. (January 14, 2021). "Parametric study on the performance of combined power plant of steam and gas turbines." *ASME. J. Thermal Sci. Eng. Appl.* OCTOBER 2021, Vol. 13 / 051006-1 doi: <https://doi.org/10.1115/1.4049753>
12. **Mohammad Almajali**, Material behavior under combination of plain and fretting fatigues, accepted in *Journal of Natural Science at Mutah University Journal of Science*, 2021.
13. **Mohammad Almajali**, "Prediction of effective thermal conductivity of coated metals foams using cubic unit cell", *Thermal Science and Engineering Progress*, Volume 25, 2021, 100989, ISSN 2451-9049, <https://doi.org/10.1016/j.tsep.2021.100989>
14. Omer Quran and **Mohammad Almajali**, "Augmented Design of Flash Boiler for Steam Generation" Under review at *Journal of Case study in Thermal engineering*
15. Omar Quran, **M. Almajali** and Aziz Al-Mahadin, Developing Mathematical Model to Predict the Material Behavior Under Contact, 2020, under review in *International Journal of Fatigue*
16. Mohammad Almajali, Omer Quran and Khalid Lafdi, manuscript entitled ER-21-21501.R1 "Performance Evaluation of Coated Carbon Foam Material in Heat Exchanger Applications" Under review after revision in *International Journal of Energy*.
17. Mohammad Z. Tarawneh and Mohammad R. Almajali, „Enhancement of energy efficiency of public building energy lighting system” Under review in *Jordan Journal of Electrical Engineering*.

## Conferences

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1. Presented paper, "Interfacial and capillary pressure effects on the thermal performance of wax/foam composite Journal of Applied Physics 102, 033506 (2007), in the American Carbon Society in Seattle (July 2007).
2. Attended 2nd Dayton Engineering Science Symposium DESS 2006 (ASME) at Wright State University.
3. Presented Two Publications at 3rd Dayton Engineering Science Symposium 2007 (ASME) at Wright State University. "Interfacial and capillary pressure effects on the thermal performance of wax/foam composite" Journal of Applied Physics 102, 033506 (2007) and the submitted paper "Thermal Properties of Copper Coated Carbon Foams"
4. Attended Blackhawk users' conference with US Army, GE, and United Technology at Corpus Christi TX on March 1997.
5. Presented at Dayton Engineering Science Symposium DESS in Wright State University 2008 the publication "Mechanical Properties of Copper Coated Carbon Foams". Carbon, 48; 1604-1608, 2010
6. Attended Midwest SAMPE conference -Society for the Advancement of Material and Process Engineering- at National Composite Center, Dayton. Ohio 2010 and presented the publication "Designing carbon foam as heat exchanger in thermoelectric cooler"
7. Presented three papers in the American Carbon Society in Clemson University South Carolina July 2010, "Assessment of carbon foam geometry during coating process". Carbon, 48 (2010) 4238-4247, "Coated Carbon Foam for Energy Heat Storage" Energy Conversion and Management (2013), pp. 336-342 and the submitted publication "Augmented Cooling Vest System Subassembly: Design and Analysis.
8. Attending the 2014 International Engine Management Program meeting at Indianapolis arranged by Rolls Royce to discuss the Deficiencies and projects related to T-56 Engines.
9. Leading the RJAF technical team in attending the 2015 Black Hawk users conference conducted in Huntsville AL, USA.
10. Presented two papers at IEEE ASET conference held in Dubai/UAE in 2019

## References

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- Professor Khalid Lafdi, PhD Advisor, University of Dayton, klafdi1@udayton.edu
- Professor Arafat Awajan, Presented of Mutah University- Awajan@MUTAH.EDU.JO
- Professor Mohammad Aljarah, Vice presented of Higher College of Technologies Dubai- mjarrah@marsrobotic.com
- Professor Omer Maaith, Dean of Faculties of Engineering at Mutah University - noor\_maaith@hotmail.com
- General Mansour Jbour, Commander of Royal Jordanian Air Force
- B.G Khalid Shoubaki, Director of Strategic Planning JAF
- Professor Yahya Zwirri, Director of Research and Development at KADDB, y.zweiri@kingston.ac.uk