Ammar Omar Gwesha, Ph.D.

Department of Mechanical and Industrial Engineering

University of Trupoli, Libya

Contact Information

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Education

2024 Ph.D. in Mechanical Engineering
The Aerospace and Mechanical Engineering
The University of Arizona
Tucson, AZ.

2012 MS degree in Mechanical Engineering
The Aerospace and Mechanical Engineering
The University of Arizona
Tucson, AZ.

2009 English Proficiency Certificate
The Center for English as a Second Language
The University of Arizona
Tucson, AZ

2005 B.S degree in Mechanical Engineering
The University of Tripoli
Tripoli, Libya

Awards

2008-12 Scholarship for Excellence
The University of Tripoli
Tripoli, Libya

2017 Distinguished Teaching Award
The University of Tripoli
Tripoli, Libya

2022 Outstanding Teaching Assistant Award nominated by Mark
Aerospace & Mechanical Engineering Department
College of Engineering
The University of Arizona
Tucson, Arizona

2024 Outstanding Teaching Assistant Award for Excellence nominated by senior students

Aerospace & Mechanical Engineering Department
College of Engineering
The University of Arizona
Tucson, Arizona

Employment and Work Experience

Sp2024 Teaching Assistant for AME 434 Internal Combustion Engines
Department of Aerospace and Mechanical Engineering
The University of Arizona
Tucson, AZ.

Fa2023 Teaching Assistant for AME 432/495S Heat Transfer/Senior Colloquium
Department of Aerospace and Mechanical Engineering
The University of Arizona
Tucson, AZ.

SU2022 Summer Instructor for AME 230 Thermodynamics
Department of Aerospace and Mechanical Engineering
The University of Arizona
Tucson, AZ.

Sp2023 Teaching Assistant for AME 230/430: Thermodynamics/Intermediate Thermodynamics
Department of Aerospace and Mechanical Engineering
The University of Arizona
Tucson, AZ.

Sp2022 Teaching Assistant for AME 230 Thermodynamics
Department of Aerospace and Mechanical Engineering
The University of Arizona
Tucson, AZ.

Sp2021 Teaching Assistant for AME 230 Thermodynamics
Department of Aerospace and Mechanical Engineering
The University of Arizona
Tucson, AZ.

Fa2021 Teaching Assistant for AME 434 Internal Combustion Engines
Department of Aerospace and Mechanical Engineering
The University of Arizona
Tucson, AZ.

2012-date Faculty Member
Industrial & Mechanical Engineering Department
The University of Tripoli
Tripoli, Libya

2013-16 Undergraduate Coordinator
Industrial & Mechanical Engineering Department
The University of Tripoli
Tripoli, Libya

2011 Teaching Assistant for AME 230: Thermodynamics, The University of Arizona

2006-07 Teaching Assistant, University of Tripoli, Libya

2005-06 High School Teacher, M. Fadil School, Tripoli, Libya

Aug 15-30 Undergraduate Internship
2004 Waha Oil Company : Oil Terminal of Sedra in Albraigah, Libya

Courses Taught – University of Tripoli, Libya

ME210	Thermodynamics I	ME312	Fluid Mechanics I
ME310	Thermodynamics II	ME318	Laboratory Instrumentations
ME302	Heat Transfer I	ME309	Numerical Methods for Engineers
ME402	Heat Transfer II	ME599	Senior Project (B.S. Project)

Selected B.S. Project Topics under my supervision (ME599 – University of Tripoli)

- Impact of Climate Conditions on Performance of Gas Turbine Cycles in Libya
- Effects of Atmospheric Conditions of Braysson Cycle
- Enhancement of Gas Turbine Cycles by Inlet Air Cooling Technologies
- Effect of Working Fluids on Performance of Organic Rankine Cycle for Waste Heat Recovery
- Effect of Bleeding Pressures & Open Feedwater Heater Position on Performance of West Tripoli Steam Power Plant
- Using HYSYS software to simulate the 1400-MW West Tripoli Steam Power Plant
- Energy Efficiency and Sustainability / Determination of Optimum Thickness of Insulation for Buildings
- Investigations of Water Hammer Effects on Pipelines of Man-made River in Libya using Bentley Software Package.
- Thermal and Flow Analysis for Transportation of Crude Oil from Elfeel Field to Melita Port in Libya

Selected Publications

[1] Gwesha, AO, Li, P, & Alfulayyih, YM. "Cost-Effectiveness Analysis for Solar Energy Harvesting Field With PV Panels at Optimized Tilt Angles Under Year-Round Weather Cycles." *Proceedings of the ASME 2024 18th International Conference on Energy Sustainability collocated with the ASME 2024 Heat Transfer Summer Conference and the ASME 2024 Fluids Engineering Division Summer Meeting*. *ASME 2024 18th International Conference on Energy Sustainability*. Anaheim, California, USA. July 15–17, 2024. V001T09A004. ASME. https://doi.org/10.1115/ES2024-131148

[2] Alfulayyih, Yasir M. et al. “Formulating a Meteorological Year for Modeling Solar PV and Wind Turbine Electricity Harvest and Hydrogen Storage to Meet Electricity Demand in a Yearly Cycle.” *ASME 2024 18th International Conference on Energy Sustainability* (2024): n. pag.

[3] Gwesha, A. O., Li, P., and Alfulayyih, Y. M. (August 24, 2020). "Optimization of Fixed Photovoltaic Panel “Tilt” Angles for Maximal Energy Harvest

Considering Year-Around Sky Coverage Conditions." ASME. *J. Sol. Energy Eng*. April 2021; 143(2): 021002.
[4] Alfulayyih, Yasir M., Peiwen Li, and Ammar Omar Gwesha. 2020. "A Generic Algorithm for Planning the Year-Round Solar Energy Harvest/Storage to Supply Solar-Based Stable Power." *Journal of Solar Energy Engineering* 142(4): 1–15.
[5] Gwesha, Ammar O., Yasir M. Alfulayyih, and Peiwen Li. "Optimization of Fixed PV Panel 'Tilt' Angles for Maximal Energy Harvest Considering Year-Around Sky Coverage Conditions." In *Proceedings of the 2019 International Mechanical Engineering Congress and Exposition IMECE2019-10391*, Salt Lake City, UT,: ASME.
[6] Alghoul, Samah K., Ammar O. Gwesha, and Abdurrauf M. Naas. 2016. "The Effect of Electricity Price on Saving Energy Transmitted from External Building Walls." Energy Research Journal 7(1): 1–9.
[7] Gwesha A, Algoul S, Naas A. "Determination of optimum insulation thickness of external walls in three Libyan cities on the basis of economic analysis of space heating (in Arabic)." Journal of Engineering Research 21 (2016): 1-14.
[8] Gwesha, A., (2012), The Numerical Simulations of the Rayleigh-Benard Convection in a Finite Horizontal Tank, MS Report supervised by Dr. Cho Lik Chan, The University of Arizona.
[9] Gwesha, A., (2005), Design of Solar Space Heating System for the Building of Mechanical Engineering Department at the University of Tripoli, B.S. Senior Project, The University of Tripoli.