CV

NAME: Ibrahim Mousa Abu-Alshaikh

Date of Birth: 6 August 1966

LANGUAGES: Arabic, English and Turkish

E-MAIL ADDRESS: i.abualshaikh@ju.edu.jo

ACADEMIC RANK, Address: Associated Professor, Department of Mechanical Engineering, The University of Jordan, Amman 11942 Jordan

SPECIALIZATION: Engineering Sciences "Applied Mechanics"

Memberships Jordan Engineers Association & ASME

RESEARCH INTEREST

1. One and two-dimensional transient dynamic response (wave propagation) in elastic, viscoelastic, functionally graded and composite materials.
2. Mechanical vibrations (vibration of beams and bridges due to a moving load).
3. Fractional differential equations and their application in viscoelastic material, vibration, biomechanics and fluid mechanics.
4. Application of numerical analysis and finite element method in mechanics.
5. Nonlinear beam deflection and mathematical modeling in engineering.

EDUCATION

1. **Bachelor:** Engineering Sciences - Applied Mechanics, Middle East Technical University Ankara, Turkey, 1990.
2. **Master:** Engineering Sciences - Applied Mechanics- **"**Transient Shear Wave Propagation in Viscoelastic Layered Media", Middle East Technical University Ankara, Turkey, 1992.
3. **PhD:** Engineering Sciences -Applied Mechanics- "Two-Dimensional Transient Dynamic Response of Layered Media", Middle East Technical University Ankara, Turkey, 2000.

EMPLOYMENT HISTORY

1. Chairman of the department of Mechanical Engineering, The University of Jordan, 2018-2019.
2. Assoc. Prof. Dr., The University of Jordan, Department of Mechanical Engineering, Amman Jordan: From September 2013- now.
3. Assoc. Prof. Dr., Applied Science University, Chairman of the department of Mech. and Ind. Engineering, Amman Jordan: From October 2007- 2013.
4. Assist. Prof. Dr., Applied Science University, Mechanical and Industrial Engineering Department, Amman Jordan: From October 2006- 2007
5. Assist. Prof. Dr., Fatih University, Istanbul, Turkey: From, October 2001 To October 2006.
6. Lecturer Dr, Middle East Technical University (METU), Ankara, Turkey: From, December 2000 to October, 2001.
7. Teaching Assistant, METU, Ankara, Turkey: From, January 1997 To July 2000.

UNIVERSITY TEACHING and SUPERVISING

1. Statics & Dynamics.
2. Engineering Drawing
3. Strength of Materials (I and II) and its Lab.
4. Mechanical Vibrations and its Lab.
5. Noise and Vibration.

6. Mechanical Design & Design Applications
7. Introduction to Finite Element Method with the aid of ANSYS & FEMAP.
8. Numerical Analysis for Engineers with the aid of MAPLE.

GRADUATE LEVEL COURSES:
1. Special Functions in Engineering Applications.
2. Finite Element Method with the aid of ANSYS, FEMAP and MAPLE.
3. Advanced Engineering Mathematics with the aid of MAPLE
4. Advanced Numerical Engineering with the aid of MAPLE
5. Research Methodology.
6. Solid Mechanics

SUPERVISING MORE THAN 15 MS. Theses, some of the titles of these theses are:
1. Vibration Control of Rotating Shaft with a Moving Torsional Absorber.
2. Dynamic Response of Functionally Graded Fractionally Damped Simply Supported Beam Subjected to Moving Oscillator.
3. Vibration Analysis for Functionally graded Simply Supported beam with a Breathing Crack.
4. Thermoelastic Analysis of Bi-directional Functionally Graded Beam.
5. Fractional Derivative Model of Free Convection Flow over a Vertical Plate with Mass Transfer and Complex Boundary Conditions for Casson-Fluid.
6. Higher Order FE Implementation of Non-axisymmetric Thermoelastic Analysis in FGM Hollow Circular Cylinder.
7. Finite Element Formulation of Higher Order Shear Deformation Theory for Functionally Graded Beams Subjected to Moving Load
8. Vibration Control of Rotating Shaft with a Moving Torsional Absorber

PUBLISHED JORNAL ARTICLES

1. **Ibrahim M Abu-Alshaikh** and Amro A Almbaidin "Analytical responses of functionally graded beam under moving mass using Caputo and Caputo–Fabrizio fractional derivative models" **Journal of Vibration and Control**, First Published February 11, 2020. DOI: 10.1177/1077546320908103.
2. Ahmed Qandil, **Ibrahim Abu Alshaikh**, Nader Aljabarin*, Khalid S. Rababa4, Nabil Beithou "Analysis of Partially Evacuated Solar Still System under Jordan Climate" **Journal of Ecological Engineering**, Volume 21, Issue 3, April 2020, pages 1–9, Received: 2020.01.15 Revised: 2020.01.30 Accepted: 2020.02.15 Available online: 2020.03.16; Volume 21, Issue 3, April 2020, pages 1–9 https://doi.org/10.12911/22998993/116324.
3. Amro ALMBAIDIN and **Ibrahim ABU-ALSHAIKH** "Vibration of Functionally Graded Beam Subjected to Moving Oscillator Using Caputo-Fabrizio Fractional Derivative Model" RJAV **Romanian Journal of Acoustics and Vibration,** vol 16 issue 2/2019, pp. 137-146.
4. **I. Abu-Alshaikh,** Hashem Alkhaldi & Nabil Beithou "Large Deflection of Presmatic Cantilever Beam Exposed to combination of End Inclined Force and Tip Moment" **Modern Applied Sciences**, Vol. 12, No. 1, 2018.
5. Othman Al-Hawamdeh, Ibrahim Abu-Alshaikh, Naser Al-Huniti, Finite Element Coding of Functionally Graded Beams under Various Boundary and Loading Conditions, **Journal of Applied Research on Industrial Engineering**, Vol. 4 (4), 2017, pp. 279–290.
6. **Ibrahim Abu-Alshaikh,** A New Technique for Investigating the Dynamic Response of a Beam Subjected to a Load-Moving System, **Journal of Applied Research on Industrial Engineering**, Vol. 4 (4), 2017, pp. 268–278.
7. **I. Abu-Alshaikh** " Closed-Form Solution of Large Deflected Cantilever Beam against Follower Loading Using Complex Analysis" **Modern Applied Sciences**, Vol. 11, No. 12, 2017.

8. **I. Abu-Alshaikh,** Hashem S. Alkhaldi, and N. Al-Rabadi " Vibration Control of Fractionally-Damped Simply-Supported Beam Attached to N-SDOF Fractionally-Damped Absorbers Part I: Subjected to a Moving Vehicle", Accepted: **Jordan Journal of Mechanical and Industrial Engineering**, Volume 8 Number 5, October 2014 ISSN 1995-6665 Pages 275 – 288.

9. Hashem S. Alkhaldi, **Ibrahim Abu-Alshaikh**, Riyad Abu-Mallouh, Osama Ghazal "Closed-form solution of large deflection of a spring-hinged beam subjected to non- conservative force and tip end moment" **European Journal of Mechanics** - A/Solids Volume 47, 2014, Pages 271–279.

10. Hashem S. Alkhaldi, **Ibrahim M. Abu-Alshaikh**, and Anas N. Al-Rabadi "Vibration Control of Fractionally-Damped Beam Subjected to a Moving Vehicle and Attached to Fractionally-Damped Multi-absorbers" **Advances in Mathematical Physics** Volume (2013), Article ID 232160, 12 pages.

11. R. Abu-Mallouh, **I. Abu-Alshaikh**, H. S. Zibdeh and Khalid Ramadan "Response of Fractionally Damped Beams with General Boundary Conditions Subjected to Moving Loads "**Shock and Vibration**", Vol. 19 Issue: 3, 333-347 (2012) DOI: 10.3233/SAV-2010-0634.

12. N. Beithoua, M. Abu Hilalb, **I. Abu-Alshaikh**, "Thermal Analysis of Discrete Water supply in Domestic Hot Water Storage Tank" **Jordan Journal of Mechanical and Industrial Engineering** Volume5 , Number1, February. 2011 ISSN 1995-6665 Pages 29- 32.

13. H. Zibdah and **I. Abu-Alshaikh**, 2008 "Vibration Response of a Beam with different Appendages Subjected to a Moving System" **International Journal of Vehicle Noise and Vibration**, 4 (2008), 93-106.

14. A. Aslanov and I. Abu-Alshaikh, 2008 "Further Development to the Decomposition method for Solving Singular initial-value Problem" **Mathematical and Computer Modelling**, 43 (2008), 700-711.

15. Abu-Alshaikh I; Kokluce, B "One-dimensional transient dynamic response in functionally graded layered media : **JOURNAL OF ENGINEERING MATHEMATICS** Volume: 54 Issue: 1 Pages: 17-30 DOI: 10.1007/s 10665- 005-7718-x Published: JAN 2006

16. I. Abu-Alshaikh., D. Turhan and Y Mengi, 2006 "Two-Dimensional Transient Dynamic Response of Orthotropic Layered Media", **Meccanica**, 41, 639-652.

17. Ibrahim Abu-Alshaikh, Ali Sahin, 2006 "Two-point iterative methods for solving nonlinear equations", **Applied Mathematics and Computations**, 182, 871-878.

18. Bülent KÖKLÜCE, İbrahim ABU-ALSHAIKH, Tuğba YILDIZ, 2005 "Derecelendirilmiş Tabakasal Malzemelerde Bir-Boyutlu Dalga Denkleminin", SIGMA: **Journal of Science and Engineering**, Yildiz Technical University, (Turkish language), 4, 31-40.

19. I. Abu-Alshaikh., D. Turhan and Y Mengi, 2002 " Transient Waves in Viscoelastic Cylindrical Layered media" **European Journal of Mechanics Part A**: Solid, 21, 811-830.

20. I. Abu-Alshaikh., D. Turhan and Y Mengi, 2001 " Two-dimensional Transient Wave Propagation in Viscoelastic layered media" **Journal of Sound and Vibration**, 244 (5), 837-858.

21. I. Abu-Alshaikh., D. Turhan and Y Mengi, 2001 " Propagation of Transient Out-of-Plane Shear Waves in Viscoelastic Layered Media" **International Journal of Mechanical Sciences**, 43 (12), 2911-2928.

22.

JOURNAL PAPERS UNDER PUBLICATION, 2021

1. **Free Convection Flow over a Vertical Plate Embedded in a Porous Medium and Subjected to a Complex Boundary Condition,** I. Abu Alshaikh, N. Beithou

2. **Free Convection Flow over a Variable Temperature Vertical Plate Embedded in a Porous Medium,** I. Abu Alshaikh, N. Beithou

3. **Forced Vibration Analysis of Functionally Graded Simply Supported Beam with a Breathing Crack;** Mohammad Ghassan AL-Hyasat and Ibrahim Mousa Abu-Alshaikh

4. **Free Vibration Analysis of Functionally Graded Simply Supported Beam with a Breathing Crack,** Mohammad Ghassan AL-Hyasat and Ibrahim Mousa Abu-Alshaikh

5. **Thermoelastic Analysis of Bi-directional Functionally Graded Beams:** Othman Al-Hawamdeh, Ibrahim Abu-Alshaikh, Naser Al-Huniti

Papers and Presentations Published at Conferences

1. Amro ALMBAIDIN and **Ibrahim ABU-ALSHAIKH** "Dynamic Response of Functionally Graded Fractionally Damped Simply Supported Beam Subjected to Moving Mass", Proceedings of International Conference on Fractional Differentiation and its Applications (ICFDA) 2018.

2. Abu-alshaikh, Anas n. Al-Rabadi, Hashem s. Alkhaldi "dynamic response of a beam with absorber exposed to a running force: fractional calculus approach"; ASME 2012 international mechanical engineering congress & exposition November 9-15, 2012, Houston, Texas, USA.

3. Hashem s. Alkhaldi, Abu-alshaikh, Anas n. Al-rabadi "vibration of a beam-oscillator system subjected to a moving vehicle: fractional derivative approach"; ASME 2012 international mechanical engineering congress & exposition November 9-15, 2012, Houston, Texas, USA.

4. N. Beithou M. Abuhilal and I Abu-Alshaikh "Thermal Analysis of Discrete Water Supply in Domestic Hot Water Storage Tank" **7th** JJMIE pp 29-32, 2010.

5. R. Abu-Mallouh, I. Abu-Alshaikh, "Dynamic Response of Fractionally Damped Beams with General Boundary Conditions Subjected to a harmonic Load", **14th International Conference on Applied Mechanical Engineering 25-27/ May/2010.**

6. Ibrahim Abu-Alshaikh & Nabil Beithou, 2007 "A common Formulation of Axisymmetric Thermal and Mechanical Stresses in Functionally Graded Cylinders and Spheres " **Proceeding the Third International Conference on Thermal Engineering**, May 21-23, Amman Jordan pp. 489-494.

7. Ibrahim Abu-Alshaikh, 2006 "One dimensional wave propagation in functionally graded cylindrical layered media", **Mathematical methods in Engineering**, Ankara-Turkey, Apr. 2006, Tas, K; Tenreiro Machado; Baleanu, D. (Eds.),2007 X, 470p., Hardcover, Springer; ISBN: 978-1-4020-5677-2.

8. Ibrahim Abu-Alshaikh, 2005 "A new iterative method for solving non-linear equations", The **Third Word Enformatika Conference**, Istanbul Turkey, Apr. 2005 Enformatika V 5, 5, 190-193.

9. Dogan Turhan[*], Yalcin Mengi[*] and Ibrahim Abu-Alshaikh, 2004" TWO-DIMENSIONAL TRANSIENT WAVE PROPAGATION IN MULTILAYERED MEDIA " **Computational Solid and Structural Mechanics**", Finland during the period July 24-28.

10. I. Abu-Alshaikh. And Mehmet Koksel, 2004 "One-dimensional Transient Dynamic Response in Functionally gradient spherical multilayered Media" **Dynamical International Conference**: - July 05 - 10, 2004, Antalya – Turkey.

11. I. Abu-Alshaikh., D. Turhan and Y Mengi, 2003 " Two-dimensional wave propagation in orthotropic layered media " Fourth International Symposium on **ACOUSTICS, NOISE, and VIBRATIONS** July 14-17, 2003, Graz –Austria.

12. I. Abu-Alshaikh., D. Turhan and Y Mengi, 2002 " Two-Dimensional Transient Wave Propagation in Cylindrical Viscoelastic Layered Media" **WCCM V**, Fifth Word Congress on, Computational Mechanics, July 7-12, 2002, Vienna, Austria. Eds.: H.A. Mang, F.G. Rammerstorfer, J. Eberhardsteiner.

13. G Birlik and I. Abu-Alshaikh, 2002 " Simple Biodynamic Models for Vehicle Drivers" **WCCM V**, Fifth Word Congress on, Computational Mechanics, July 7-12, Vienna, Austria. Eds.: H.A. Mang, F.G. Rammerstorfer, J. Eberhardsteiner.

14. I. Abu-Alshaikh., D. Turhan and Y Mengi, 2001 "Viskoelastik Silindrik Tabakasal Ortamlarda İki-Boyutlu Geçici Dalga Yayılışı". (Written in Turkish language), **XII ULUSAL Mekanik Kongresi**, Turkey, 9 Eylül University, Konya.

15. I. Abu-Alshaikh, D. Turhan and Y Mengi, 2001 "Tow-Dimensional Transient Shear Wave Propagation in Viscoelastic Cylindrical Layered Media", **Computational Methods and Experimental Measurements X**, Editors: Y. Villacampa Esteve, G. M. Carlomagono & C. A. Brebbia, Spain, June 2001: WITPRESS Southampton, Boston   515-524.

16. I. Abu-Alshaikh, D. Turhan, 1993 "Transient Wave Propagation in Periodically Layered Media" **Photonic Band Gaps & Localization**, Edited by C.M. Soukoulis   Place Date: New York, Publishiy Company Page numbers: 479-485.

17. I. Abu-Alshaikh, D. Turhan 1993 "Transient Wave Propagation in Viscoelastic Layered Media" **Structural Dynamics**, Edited by (T.Moan, P.G. Bergan….), Balkema, Rotterdam, ISBN 9054103361, Page numbers: 351-357.

COMPUTER USE

Name of the software	Ability	Nature of the use
ANSYA, Finite Element Program	Excellent	Research, Projects, Teaching
MAPLE Mathematics Program	Excellent	Research, Projects, Teaching
FORTRAN	Excellent	Research
Grapher, 2D and 3D	Excellent	Research, Projects
Word, Excel and Power Point	Excellent	Research, Projects
Mathcad, Mathematica and MATLAB	Good	Research,
Visual Basic,	Good	Projects
Python	Good	Learning

TEACHING PHILOSOPHY

1. Treating all students with absolute equality, regardless of age, gender, nationality, or intellectual ability.
2. Making it clear that I am always available on request, and loving my job and my students. Thus, they feel this and ask me for help in their other subjects!, since they have a sixth sense for it.
3. I make it my business to try to understand the student's point of view however before attempting to give them my own. This means that when I do teach I can choose a conceptual path that leads from the student's current understanding to a broader or more conventional one.
4. I try to set a good professional example in written solutions and in conversation, by always referring everything back to the standards of the engineering industry, where a single error could lead to tremendous expense or even loss of life.
5. Putting a high priority on grading assignments quickly and providing lots of written feedback so the students can learn from their mistakes until they can demonstrate acceptable performance.
6. After giving the grades to the students, I am applying a face-to-face regarding-policy to remove all mystery from the grading process and get feedback on whether mistakes are due to misunderstanding, miscommunication, or inattention to details.

NAMES & ADDRESSES OF FIVE REFERENCES

Name Position, **Prof. Dr. Hazem Zibdeh**
> Present Address, Department of Mechanical Engineering Jordan University of Science and Technology, Irbid, Jordan. E-mail: hazemz@batelco.jo TL: 00962795514707

Name Position, **Prof. Dr. Mohammad Dado**
> Present Address, The University of Jordan, Amman 11942, Jordan,
> Department of Mechanical Engineering, E-mail: dado@ju.edu.jo TL: 009626797775290

Name Position, **Prof. Dr. Nabil Beithou**
> Present Address, Tafila Technical University, Tafila, Jordan,
> Department of Mechanical Engineering, E-mail: **beithounabil@yahoo.com**
> TL: 00962790764692

I, the undersigned, testify that all information and details in this C.V. are true and correct. I will also present all supporting documents upon request.

Dr. Ibrahim Abu-Alshaikh
Queen Ranya Street, Amman - 11942 Jordan
Department of Mechanical Engineering
The University of Jordan
Phone: 00962795179337
E-Mail: **i.abualshaikh@ju.edu.jo**

May, 2020