

Professor “Mohammad Hamzeh” F. Dado

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Personal Information

Marital status: Married.
Nationality: Jordanian
Date of Birth: August, 1960.
Place of Birth: Amman - Jordan

Education

University of Cincinnati Cincinnati - Ohio

Ph.D. Dec. 1988
Major: Mechanical Engineering, GPA: 4.00/4.00
Field of Concentration: Machine Design and Mechanisms.
Dissertation Title: Modeling and Simulation of Spatial Robotic Manipulators with Flexible Links and Joint Drives for Control Strategies Implementation and Evaluation.

Tennessee Tech. University Cookeville - Tenn.

MS Aug. 1983
Major: Mechanical Engineering, GPA: 3.83/4.00
Field of Concentration: Mechanical Engineering.

Tennessee Tech. University Cookeville - Tenn.

BS. Dec. 1981
Major: Mechanical Engineering, GPA: 3.61/4.00
Minor: Mathematics.

Professional experience

University of Jordan

Amman - Jordan

Oct. 2007 - Present

Assistant Dean for accreditation and development at the Faculty of Engineering and Technology, University of Jordan.

University of Jordan

Amman - Jordan

Dec. 2005 - Present

Full Professor - Department of Mechanical Engineering. Coordinator of the ABET steering committee in the ME department.

University of Jordan

Amman - Jordan

Sept. 2001 – Dec. 2005

Associate Professor - Department of Mechanical Engineering.
Assistant Dean of Engineering and Technology for Research and Developments (Sept. 2002-Sept. 2003).

University of Jordan

Amman - Jordan

Sept. 1990 – Feb. 2001

Assistant Professor - Department of Mechanical Engineering.

King Saud University

Riyadh - Saudi Arabia

Sept. 1989-Sept. 1990

Assistant Professor - Department of Mechanical and Industrial Engineering.

The Dee Howard Co.

San Antonio - Texas

March 1989-Sept. 1989

Senior Engineer, Stress Analysis and Design Department.

Publications

1. Alsabbagh, A. S., Abuzeid, O. M., **Dado, M. H.**, "Simplified Stress Correction Factor to Study the Dynamic Behavior of a Cracked Beam", *Applied Mathematical Modeling*, 33 (2009) 127–139.
2. Jaradat, M., **Dado, M.**, "A New Approach for Large Deflection Analysis of Beams With Different Boundary Conditions", The 6th Jordanian International Mechanical Engineering Conference, 22-24 October 2007, Amman-Jordan.
3. Al-Sadder, S., Shatnawi A. S., **Dado, M. H.**, "Exact post-buckling configurations of cantilevered column subjected to forces produced by a tensioned cable", *Mechanics Research Communications*, 34 (2007) 395–404
4. **Dado, M. H.**, "Large Deflection of Elastically Restrained and Initially Curved Compliant Links with Non-Uniform Cross-Sections", The 12th International Conference on Machine Design and Production, 05-08 September 2006, Kuşadası, Turkey
5. **Dado, M. H.**, Al-Sadder, S., "The elastic spring behavior of a rhombus frame constructed from non-prismatic beams under large deflection", *International Journal of Mechanical Sciences*, Volume 48, Issue 9, September 2006, Pages 958-968.
6. Al-Sadder, S., **Dado, M. H.**, "An Accurate Numerical Scheme for Large Deflection Analysis of Non-prismatic Inextensible Slender Beams Subjected to General Loading and Boundary Conditions", *Advances in Structural Engineering* Vol. 8 No. 6, 2005
7. **Dado, M. H.**, Abdallah, M. O. and Kilani, M. I., "An Automatic Continuous Filling Machine for Dry Bulk Material: A Case Study in Mechatronics System Design", The 2nd International Conference on Mechatronics, *ICOM'05*, 10-12 May 2005, Kuala Lumpur, Malaysia.
8. **Dado, M. H.**, Al-Sadder, S., "A New Technique for Large Deflection Analysis of Non-Prismatic Cantilever Beams", *Mechanics Research Communications*, Volume 32, Issue 6, November-December 2005, Pages 692-703.
9. **Dado, M. H.**, "Limit Position Synthesis and Analysis of Compliant 4-Bar Mechanisms with Specified Energy levels Using Variable Parametric Pseudo-Rigid-Body Model", *Mechanism and Machine Theory*, Volume 40, Issue 8, August 2005, Pages 977-992.
10. Shipli, O., **Dado, M. H.**, "Optimal Synthesis of Function Generator Mechanisms with Maximum Mechanical Advantage", The Eleventh International Conference on Machine Design and Production, 13 - 15 October 2004, Antalya, Turkey.
11. Abu-zeid, O. **Dado, M. H.**, "Fractal model to predict the crack roughness effect on the local bending compliance of circular shafts", *International Journal of Mechanical Sciences*, Volume 46, Issue 5, May 2004, Pages 695-702.
12. **Dado, M. H.**, Al-Sadder, S. and Abu-Zeid, O., "Post-Buckling Behavior of a Compliant Column with Intermediate Local Bending Flexibility", *International Journal of Non-Linear Mechanics*, Volume 39, Issue 10, December 2004, Pages 1579-1587.
13. **Dado, M. H.**, "Large-Deflection Shape of Initially Curved Flexible Cantilever Beams Subjected to an Inclined End Load and Moment", 8th Cairo University Conference on Mechanical Design and Production, January 4-6, 2004.
14. **Dado, M. H.**, and Shpli, O. "Crack Parameter Estimation in Structures Using Finite Element Modeling", *International Journal of Solids and Structures*, Volume 40, Issue 20, October 2003, Pages 5389-5406.
15. Yamen, J, and **Dado, M. H.**, "Performance Simulation of a Four-Stroke Engine with Variable Stroke and Compression Ratio", *Applied Energy* 77 (2004) 447-463.
16. **Dado, M. H.**, and Abu-Zeid, O., "Coupled Transverse and Axial Vibratory Behavior of Cracked Beam with End Mass and Rotary Inertia", *Journal of Sound and Vibration*, Vol. 261, No. 4, pp 675-696, 2003.
17. **Dado, M. H.**, "Variable Parametric Pseudo-Rigid-Body Model For Large-Deflection Beams With End Loads" *International Journal of Non-linear Mechanics*, Vol. 36, No. 7, pp 1123-1133, 2001.
18. **Dado, M. H.**, Al-Huniti, N. S., Eljabali, A. K., "Dynamic Simulation Of A Servo-Controlled Mixed Loop Robot With Joint Flexibility" *Mechanisms and Machine Theory*, Vol. 35, No. 4, pp 547-559, 2001.

19. **Dado, M. H.** and Al-Numan, N. G., "Force-Motion Programming of Spring Loaded Mechanisms", The 4th Jordanian International Mechanical Engineering Conference 8-10 October 2001, Amman, Jordan.
20. **Dado, M. H.** and Al-Huniti, N. S., "A Compliant Four-Bar Mechanism Synthesis Using The Pseudo-Rigid-Body Model" 7th International Conference on Production Engineering, Design and Control 13-15 February, 2001 Alexandria, Egypt.
21. Hamdan, M. N. and **Dado, M. H.**, "Large Amplitude Free Vibration of A Uniform Cantilever Beam Carrying An Intermediate Lumped Mass And Rotary Inertia", Journal of Sound And Vibration, Vol. 206, No. 2, pp. 151-168, 1997.
22. **Dado, M. H.**, "A Comprehensive Crack Identification Algorithm for Beams under Different End Conditions." Journal of Applied Acoustics, Vol. 51, No. 4, pp. 381-398, 1997.
23. **Dado, M. H.**, "Frequency Analysis of A Flexible Two Link System Using The Exact Approach" Dirasat, The deanship of Research, University of Jordan, Natural and Engineering Sciences, Vol. 24, No. 2, June 1997.
24. **Dado, M. H.** and Manaa, Y., " An Automated Procedure for Dimensional Synthesis of Planar Mechanisms.", Journal of King Saudi University, Engineering Sciences (1) Vol. 8, King Saud University, 1997.
25. **Dado, M. H.**, "A general Multi-rigid Body Dynamic Modeling Procedure Applied to A Three Axes Mixed Loop Base Driven Robot" Journal King Abdulaziz University, King Abdulaziz University, Vol. 10, No. 1, 1998.
26. **Dado, M. H.** and Abu-Alrub, N., "Utilizing Vibrational Mode shapes in Identifying Cracks in Cantilever Beams." Engineering Research Journal, United Arab Emirates University, No. 1 Vol. 7, 1994/1995.
27. **Dado, M. H.** and Shishani, Y., "Computer Aided Kinematics Analysis of Mechanical Systems." Proceedings of the first Jordanian Mechanical Engineering Conference, Amman, 25-28 June, 1995.
28. Kilani, M. A. and **Dado, M. H.** "Application of CAD/CAM Systems in Representation and Flat Generation of Developable Surfaces." Proceedings of the first Jordanian Mechanical Engineering Conference, Amman, 25-28 June, 1995.
29. **Dado, M. H.** and Kilani, M. A. "Mechanical Design and Control of Automated Sheet Metal Cutting Machine." Proceedings of the first Jordanian Mechanical Engineering Conference, Amman, 25-28 June, 1995.
30. **Dado, M. H.** and Soni A. H. "Compliant Actuator Modeling and Drive Motor Torque Optimization for Joint Drive System of A Robotic Manipulator", ASME Mechanisms Conference, 1988.
31. **Dado, M. H.** and Soni, A. H. "A Comprehensive Dynamic Analysis Tool for Flexible Robotic Manipulators." Proceedings of 1988 US-Japan Symposium.
32. "Complete Dynamic Analysis of Elastic Linkages." with A. H. Soni, Journal of Mechanisms, Transmission and Automation in Design, ASME paper # 86-det-52.
33. **Dado, M. H.** and Soni, A. H. "Dynamic Response Analysis of 2-R Robots with Flexible Joints." IEEE International Conference on Robotics and Automation, Raleigh, NC, April 1987.
34. Soni, A. H., **Dado, M. H.** and Weng, Y. "An Automated Procedure for Intelligent Mechanism Selection and Dimensional Synthesis." Journal of Mechanisms, Transmission and Automation in Design, ASME paper # 86-det-14.
35. Soni, A. H., Weng, Y. and **Dado, M. H.**, "An Intelligent Mechanism Selection Consultant." Proceedings of ASME Computers in Engineering Conference, Chicago, July, 1986.
36. **Dado, M. H.** and Soni, A. H. "A Generalized Approach for Forward and Inverse Dynamics of Elastic Manipulators." IEEE International Conference on Robotics and Automation, April 1986.

37. Bagci, C. and **Dado, M. H.**, "Observations on the Analytical and Experimental Kinetoelestatic Response of Mechanisms Involving Flexural Line Elements, Lumped Mass Systems, and Dynamic Damping Factors; and Applications to Kinetoelestatics of Industrial Robots." ASME Design Engineering Technical Conference, 1984.
 38. **Dado, M. H.** and Bagci, C., "Gear Tooth Stress Analysis by Polar Finite Element Technique and the Related Geometric Stress Concentration Factor Chart for Gear Strength and Fatigue Design." 8th Applied Mechanisms Conference, St. Louis, MO, Sept. 1983.
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Additional professional activities

Principle Investigator in funded research projects:

- Large-Deflection Shape of Initially Curved Flexible Cantilever Beams Subjected to an Inclined End Load and Moment
 - Design and Construction of Olive Picking Tools.
 - Design and Construction of A Computer Integrated Sheet Metal Cutting Machine.
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Professional memberships and Honors

- American Society of Mechanical Engineers (ASME).
 - Jordan Engineers Association.
 - Phi Kappa Phi, Honor Society.
 - Pi Tau Sigma, Honor Society.
 - Du Pont Scholarship Award.
 - Procter & Gamble Student Contest Award.
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Community activities

- Member of the Mechanical Engineering branch council at the Jordan Engineers Association (2006-2009).
 - Chairman of the organizing committee of the Sixth Jordanian International Mechanical Engineering Conference (*JIMEC'6*) held in Oct. 22-24, 2007.
 - Chairman of the scientific committee of the mechanical engineering branch in the Jordan Engineers Association (2004-2006).
 - Present and past member of services committees in Jordan Engineers Association.
 - Member of research committees in Jordan's Standards Corporation.
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Courses Taught

1. Machine Design I & II for Mechanical Engineering Students.
2. Theory of Machines.
3. Mechanical Vibrations.
4. Dynamics of Machinery.
5. Mechanics of Materials.
6. Engineering Mechanics / Dynamics.
7. Principles of Machine Design for Industrial Engineering Students.
8. Mechanical Vibrations and Mechanics of Material Laboratories.
9. Advanced Engineering Mathematics (Graduate Level).
10. Computer Aided Design (Graduate Level).
11. Finite Element Analysis (Graduate Level).
12. Advanced Dynamics and Vibration (Graduate Level).
13. Nonlinear Optimization (Doctoral Level).

Supervision of Student Research and Projects

1. Co-supervised one Ph.D. dissertation in crack detection in structures.
 2. Supervised 8 M.Sc. theses in machine design, structural dynamics, mechanisms and robotics.
 3. Supervised over 60 B.Sc. graduation projects for over 200 Mechanical Engineering students. Four projects won the Jordan Engineers Association award for best projects among engineering colleges in Jordan. The award program started in the year 2000.
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Faculty Activities and Committees

1. Chairman of college committee on writing a proposal to the Higher Education Development Fund. The proposal aims at funding a project for obtaining substantial equivalency from ABET for the Mechanical Engineering Program. The proposal was awarded to the Faculty of Engineering in December 2003.
 2. Conducted a training course for local industry and national army engineers in bearing selection and design.
 3. The sole owner of a patent on variable valve timing of internal combustion engines. The patent is registered in Jordan.
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References

1. Prof. Yousef Zurigat, Mechanical Engineering Department, Faculty of Engineering, American University at Sharjah.
2. Dr. Ahmad Smaili, Vice President for Academic Affairs, Fahad Bin Sultan University, Tabuk, Kingdom of Saudi Arabia.
3. Prof. Bassam Jubran, Department of Aerospace Engineering, Ryerson University, Toronto, Ontario, Canada.
4. Prof. Larry L. Howell, Director, Utah Center of Excellence for Compliant Mechanisms, Brigham Young University, Provo, Utah, USA