Department of Mechanical Engineering
Khulna University of Engineering & Technology
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Dr. Md. Ashraful Islam
Professor
Research Areaï,§ Aerospace Structure and Materials: Bio and nature inspire materials, Polymer composite, Metamaterials ï,§ UAV Design: VTOL UAV, micro flying robot, Drone application in sustainability resource management and industry 4.0) ï,§ Computational Mechan

Biography

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Education

PhD in Aerospace Engineering
University of New South Wales (UNSW) Sydney, Australia,Australia(2014-2018)
Thesis Title: **Mechanics of Closed-cell Cellular Materials**
Masters in Aerospace Engineering
Institute of Aeronautics and Astronautics, National Cheng Kung University, Tainan, ,Taiwan(2010-2012)
Thesis Title: **Design and Development of Electromagnetic Shock Wave Generator**
Bachelor of Science in Mechanical Engineering
Rajshahi University of Engineering and Technology (RUET),Bangladesh(2000-2005)
Thesis: Development of particulate pollutant measurement devices

Service Records

- **Assistant Professor**
  Department/Section: Mechanical Engineering
  Khulna University of Engineering and Technology *From 01-01-1970 to 01-01-1970*
  Working Area:University Teaching
  Responsibility:ï,§Supervising and examining projects and theses of undergraduate and graduate students ï,§Performing different administrative works such as preparing undergraduate results. ï,§Designing and preparing the Lab Sheets of different undergraduate courses ï,§Preparing the testing reports and consultancy documents ï,§Trained and supervised students and conducted Engineering projects and theses Configured and installed different tools/software in Mechanical Engineering laboratories
- **Research Assistant (Part-time)**
  Department/Section: Institute of Aeronautics and Astronautics
  National Cheng Kung University, Taiwan *From 01-01-1970 to 01-01-1970*
  Responsibility:ï,§Installation, Maintenance and Repair of materials testing. ï,§Troubleshooting using service manuals, computerized diagnostics & general technical experience ï,§Data requisition from complex experimentation for materials testing. ï,§Test set up for various undergraduate studentsâ€™ projects. ï,§Supervised and trained students on lab test setup. ï,§Led discussion sessions on experimental results and graded lab reports ï,§.Develop & maintain key relationships with significant other laboratory personnel
- **Academic Casual (Part-time)**
  University of New South Wales (UNSW) , Canberra *From 01-01-1970 to 01-01-1970*
  Responsibility:ï,§preparing the tutorial materials, preparing the PPT slides, re-designing the lectures. ï,§Delivering high-quality teaching as measured by studentsâ€™ feedback evaluations. ï,§ Instructed students in weekly labs, Materials Engineering Labs for 6 semesters. ï,§Taught principles and concepts of Materials Engineering to 100+ students through experiments including mechanical testing methods, metallography, microstructure analysis, and heat treatment. ï,§Supervised and trained students in material testing: hardness, impact, tensile, compression, fatigue, creep tests, hardenability, cold rolling, microhardness, and metallography. ï,§Providing consultation and assistance to the students. ï,§ Demonstrating the lab classes by performing physically and teaching students.
- **Associate Professor**
  Department/Section: Mechanical Engineering
  Khulna University of Engineering and Technology *From 01-01-1970 to 01-01-1970*
  Responsibility:ï,§Lecturing and coordinating different undergraduate and graduate course ï,§Supervising projects and theses of undergraduate and graduate students ï,§Performing different administrative works such as preparing undergraduate results. ï,§Conducting research and publication ï,§Laboratory in charge in Applied Mechanics in the Department of Mechanical Engineering. ï,§Worked with faculty to maintain ABET assessment. ï,§Configure and installing of different tools/software in Mechanical Engineering laboratories
- **Assistant Professor**
  Department/Section: Mechanical Engineering
  Khulna University of Engineering and Technology *From 01-01-1970 to 01-01-1970*
  Working Area:University Teaching
  Responsibility:ï,§Lecturing and coordinating different undergraduate and graduate course ï,§Supervising projects and theses of undergraduate and graduate students ï,§Performing different administrative works such as preparing undergraduate results. ï,§Conducting research and publication ï,§Laboratory in charge in Applied Mechanics in the Department of Mechanical Engineering. ï,§Worked with faculty to maintain ABET assessment. ï,§Configure and installing of different tools/software in Mechanical Engineering laboratories
- **Lecturer**
  Department/Section: Mechanical Engineering
  Khulna University of Engineering and Technology *From 01-01-1970 to 01-01-1970*
  Working Area:University Teaching
  Responsibility:-Supervising and examining projects and theses of undergraduate and graduate students; Performing different administrative works such as preparing undergraduate results; Designing and preparing the Lab Sheets of different undergraduate courses; Preparing the testing reports and consultancy documents -Trained and supervised students and conducted Engineering projects and theses; Configured and installed different tools/software in Mechanical Engineering laboratories.

Research Interest

ï,§ Aerospace Structure and Materials: Bio and nature inspire materials, Polymer composite, Metamaterials ï,§ UAV Design: VTOL

UAV, micro flying robot, Drone application in sustainability resource management and industry 4.0) ï‚§ Computational Mechan

I have research collaboration with following universities as evidenced in joint publications ï‚§ Australian National University (ANU), Canberra, Australia ï‚§ Sydney University (SU), Sydney, Australia ï‚§ Swinburne University of Technology, Melbourne, Australia ï‚§ Cranfield University of Technology, UK ï‚§ National Cheng Kung University, Tainan, Taiwan

Publication

Books

1. Brown,A. , Hutchison,W. , Islam,M. , Kader,M. , Escobedo,J. and Hazell,P. , ***Effects of Thermal Processing on Closed-Cell Aluminium Foams*** ,Characterisation of Minerals, Metals, and Materials TMS-2017

2. Islam,M. , Kader,M. , Brown,A. , Hazell,P. , Escobedo,J. and Saadatfar,M. (2017) , ***Experimental Investigation of Mechanical Behaviour of Closed-Cell Aluminium Foams Under Drop Weight Impact*** ,Characterisation of Minerals, Metals, and Materials, TMS 2017

3. Kader,M. A. , Hazell,P. J. , Saadatfar,M. , Islam,M. A. , Brown,A. D. and Escobedo,J. P. (2018) , ***The Influence of Microstructure on the Collapse Mechanisms and Specific Energy Absorption Capacity of Aluminium Alloy Foams*** ,Presented in Characterisation of Minerals, Metals, and Materials, TMS 147th Annual Meeting and Exhibitio

4. Islam,M. , Kader,M. , Hazell,P. , J.P.Escobedo,J. , Saadatfar,A. B. a. M. and ,(2018) , ***Characterization of Minerals, Metals, and Ma*** ,TMS

Journals

21. Somadder,S. ,Das,P. and Islam,M. A. (2023) , " Characteristics of stress distribution of a multi layered cylindrical pressure vessel," ***Journal of Mechanical and Energy Engineering***, Koszalin University of Technology, pp.1-6

20. Das,P. , Benslimane,A. , Islam,M. and Nazim,M. S. (2023(under review)) , " Finite Element Analysis (FEA) of a generalized rotating FGM pressure vessel subjected to thermo-mechanical loadings: Effect of Poisson ratio and others inhomogeneity parameters.," ***Composite Structures***, Elsevier BV

19. Das,P. , Benslimane,A. , Islam*,M. , Mondal,D. and Nazim,M. S. (2023 (under review)) , " A heterogeneous thermo-mechanically loaded rotating FGM thick cylindrical pressure vessels under parabolic changing properties: analytical and finite element analysis (FEA)," ***Acta Materialia***, Elsevier BV

18. Das,P. ,Islam,M. and Nazim,D. M. a. M. (2023 (under review)) , " Analytical and FEA analysis of steady heat transfer in generic FGM cylinder coated with isotropic layers under convective-radiative boundary conditions," ***Composite Structures***, Elsevier BV

17. Dudul,M. S. H. ,Mahmud,M. S. and Islam,a. M. A. (2023) , " Low-Fidelity Aerodynamic Load Analysis of Helicopter Rotor in Hover," ***Journal of Aeronautics, Astronautics and Aviation***, vol55, no.2, pp.159-168

16. Chanda,D. and Islam,M. (2023) , " Numerical modeling of low-velocity impact on composite laminates ," ***MIST International Journal of Science and Technology***

15. Das,P. , Islam,M. , Somadder,S. and Hasib,M. (2023) , " Analytical and numerical solutions of pressurized thick-walled FGM spheres," ***Archive of Applied Mechanics***, Springer

14. Zulkarnaen,M. , Islam,M. , Al-Faruk,A. A. , Paranto,M. , Mondal,D. and Mukut,M. (2023 (accepted)) , " Numerical Analysis of Aerodynamic and Shock Wave Characteristics of Biconvex and Double-Wedge Shape Airfoils for Supersonic Flow," ***International Journal of Automotive and Mechanical Engineering,***

13. Rahman,A. , Hasib,M. A. , Islam,M. A. , Alam,I. and Chanda,S. ((Accepted) 2022) , " Fabrication and Performance Investigation of Natural-Glass Fiber Hybrid Laminated Composites at Different Sticking Orientations," ***Journal of Natural Fibers***, vol20

12. Hasan,M. , Islam,M. , Huang,Z. , Zhao,J. and Jiang,Z. (2022) , " Influence of sintering time on diffusion bonding of WC-10Co and AISI4340 by spark plasma sintering," ***Materials Science and Technology***

11. Somadder,S. ,Das,P. and Islam,M. (2022) , " Numerical Investigation of Interfacial Stress Distribution in Adhesive-Bonded Joints for Different Adhesive Materials," ***International Journal of Engineering and Applied Sciences***, Akdeniz University, vol14, no.2

10. Islam,M. , Hasib,M. , Hasan,M. and Talapatra,S. (2022) , " Deformation Behaviour and Mechanical Response of Closed-cell Cellular Materials under Projectile Impact Using Various Shapes Impactors," ***International Journal of Automotive and Mechanical Engineering***, vol19, no.3

9. Das,P. , Islam,M. , Somadder,S. and Hasib,M. (2022) , " Analytical and numerical analysis of functionally graded (FGM) axisymmetric cylinders under thermo-mechanical loadings," ***Materials Today Communications*** , vol22

8. (2021) , " Strain-Rate Dependency and Impact Dynamics of Closed-Cell Aluminium Foams," ***Materials Science and Engineering A***, vol818, pp.141379

7. (2020) , " Effects of impactor shape on the deformation and energy absorption of closed cell aluminium foams under low velocity impact," ***Materials Design***, vol191, pp.108599

6. Kader,M. I. M. , Hazell,P. , Saadatfar,A. B. M. , Quadir,M. , Xu,S. and Ruan,D. (2018) , " Mechanical response and dynamic deformation mechanism of closed-cell aluminium alloy foams under pulse loading," ***International Journal of Impact Engineering***, vol114, pp.111-122

5. Kader,M. A. , Islam,M. A. , Saadatfar,M. , Hazell,P. J. , Brown,A. D. and Escobedo,S. A. a. J. P. (2017) , " Macro and micro collapse mechanisms of closed-cell aluminium foams during quasi-static compression," ***Materials and Design***, vol118, pp.11-21

4. Islam,M. , Kader,M. , Hazell,P. , Saadatfar,A. B. M. , Quadir,M. and Escobedo,J. P. (2016) , " Investigation of microstructural and mechanical properties of cell walls of closed-cell aluminium alloy foams ," ***Materials Science and Engineering A*** , vol201, pp.245 -256

3. (2016) , " Modelling and characterisation of cell collapse in aluminium foams during dynamic loading ," ***International Journal of Impact Engineering,*** , vol96, pp.78-88

2. Kader,M. , Islam,M. A. , Hazell,P. , Escobedo,J. , Saadatfar,M. and Brown,A. (2016) , " Computational modelling of closed-cell aluminium foams to investigate structural deformation under quasi-static loading," ***Journal of Applied Mechanics and Materials***, vol846, pp.133-1138

1. Islam,M. A. , Hazell,P. J. , Escobedo,J. P. and Saadatfar,M. (2014) , " In-situ quasistatic compression and microstructural characterisation of aluminum foams of different cell topology," ***International Journal of Aerospace and Mechanical Engineering***, vol8, pp.1285-1290

Conference

24. Roy,H. and Islam,M. A. (21-22 July, 2023) , "Active space debris collection using harpoon technology of various tip shapes," ***1st IUT International Conference on Mechanical, Materials and Production Engineering (IUT-ICMMPE)*** , Islamic University of Technology (IUT)

23. Mahmud,M. and Islam,M. A. (Dec 2022) , "Design and Motion Analysis of Four-Legged Walking Robot using Theo Jansen Mechanism," ***7th International Conference on Mechanical, Industrial and Energy Engineering*** , Khulna University of Engineering and Technology

22. Turna,R. N. , Hasib,M. A. , Islam,M. A. and Hyder,N. (Dec 2022) , "Effect of Length of Composite on CFRP Strengthened Steel Beam-Column Joints under Cyclic Load," ***7th International Conference on Mechanical, Industrial and Energy Engineering*** , Khulna University of

Engineering and Technology

21. Rabbi,G. , Hasib,M. .. A. , Debnath,A. K. and Islam,M. A. (2022) , "Fracture Analysis of Adhesively Bonded Joints as a Function of Temperature," ***International Conference on Mechanical, Manufacturing and Process Engineering (ICMMPE -2022)***

20. Islam,M. A. ,Zulkarna-En,M. Z. and Mukut,M. A. H. a. M. (2022) , "Numerical Simulation of Aerodynamic Performance of Biconvex Supersonic Airfoil," ***International Conference on Mechanical, Manufacturing and Process Engineering (ICMMPE-2022)***

19. (2021) , "Mechanical Behaviour of Closed-cell Cellular Composite Under Drop Weight Impacts," ***International Conference on Mechanical Engineering and Renewable Energy, ICMERE 2021***

18. Islam,M. , Hasan,M. , Mahbub,S. and Roy,H. (2021) , "Finite Element Prediction of Deformation of Closed-cell Cellular Materials for Sustainable Materials Characterisation," ***International Conference on Science & Contemporary Technologies (ICSCT)*** , pp.1-5

17. Gunturi,C. ,Escobedo,J. and Islam,a. M. (2019) , "Comparative Analysis of Dynamic Impact Tests Between the Charpy V-Notch Test and the Drop Tower Test," ***TMS 2019*** , pp.553-560

16. Kader,M. A. , Hazell,P. J. , Saadatfar,M. , Islam,M. A. , Brown,A. D. and Escobedo,J. P. (March, 2018) , "The Influence of Microstructure on the Collapse Mechanisms and Specific Energy Absorption Capacity of Aluminium Alloy Foams," ***haracterisation of Minerals, Metals, and Materials, TMS 147th Annual Meeting and Exhibition*** , pp.11-15

15. Kader,M. , Islam,M. , Brown,A. D. , Hazell,P. , Saadatfar,M. and Escobedo,J. (2017) , "Deformation mechanisms of closed cell-aluminium foams during drop weight impact," ***TMS 2017*** , pp.233-239

14. Islam,M. , Kader,M. A. , Brown,A. , Hazel.l,P. H. , Escobedo,J. P. and Saadatfar,M. (2017) , "Experimental Investigation of Mechanical Behaviour of Closed-Cell Aluminium Foams Under Drop Weight Impact," ***TMS 2017*** , pp.2017-2024

13. Brown,A. , Hutchison,W. , Islam,M. , Kader,M. , Escobedo,J. and Hazell,P. , "Effects of Thermal Processing on Closed-Cell Aluminium Foams," ***TMS 2017*** , pp.217-224

12. Kader,M. , Islam,M. A. , Saadatfar,M. , Turner,M. , Hazell,P. and Escobedo,A. B. a. J. (2016) , "Computed tomography based structural analysis and computational modelling to investigate deformation mechanism in aluminium foams during low-velocity impact," ***VII European Congress on Computational Methods in Applied Sciences and Engineering, ECCOMAS Congress 2016***

11. Kader,M. , Islam,M. , Hazell,P. and Saadatfar,J. E. a. M. (June 14-19,2015) , "Numerical Modelling of Closed-cell Aluminium Foam Under Dynamic Loading," ***19th Biennial APS Conference on Shock Compression of Condensed Matter, APS SCCM-2015***

11. Islam,M. , Kader,M. , Hazell,P. and Appleby-Thomas,J. E. a. G. A. (June 14-19,2015) , "Dynamic Crushing Response of Closed-cell Aluminium Foam at Variable Strain Rates," ***19th Biennial APS Conference on Shock Compression of Condensed Matter, APS SCCM-2015***

10. (26-30 June 2017) , "Pore scale collapse mechanism of closed-cell aluminium foams during quasi-static compression," ***3rd International Conference on Tomography of Materials and Structures***

9. Islam,M. , Escobedo,J. , Hazell,P. and Quadir,G. A. a. M. (2015) , "Characterisation of Closed-cell Aluminium Foams Subjected to Compressive Loading," ***proceedings of Characterisation of Minerals, Metals and Materials, 2015 TMS Annual Meeting & Exhibition***

8. Islam,M. ,Islam,M. and Hasan,G. H. (2013) , "Design and Numerical analysis of vertical axis wind turbine for low wind velocity," ***Proceedings of 15th Annual Paper Meet(APM)***

7. Uddin,M. ,Islam,M. and Mashud,M. (2013) , "Fracture properties of thin papers made from grapheme oxide," ***2nd International Conference on Mechanical Engineering and Renewable Energy(ICMERE)***

6. Islam,M. ,Lin,C. and Liang,S. M. (2013) , "Design of a Finite Amplitude Electromagnetic Shock Wave Generator for Biomedical Application ," ***International Conference on Engineering Research,Innovation and Education, ICERIE 2013***

5. Islam,M. A. and Lin,C. E. (2012) , "Development of a Finite Amplitude Liquid Shock Wave Generator by Electromagnetic Coil Repulsion," ***Proceedings of the International Conference on Mechanical, Industrial and Energy Engineering (ICMIEE2012)***

4. Islam,M. and Gau,C. (2012) , "Experimental Steady state Heat Transfer characteristics through a silicon microstructured microchannel," ***International Conference on Mechanical, Industrial and Energy Engineering (ICMIEE2012)*** , Department of Mechanical engineering, Khulna University of Engineering &Technology, Bangladesh

3. Hasan,M. ,Islam,M. A. and Bunchan,R. (2011) , "A Binary Hyper Redundant Elephant Trunk like Robot controlled by Microcontroller and PLC-WINCC," ***International Conference on Mechanical Engineering, (ICME2011)***

2. Hasan,M. , Ekpanyapong,M. , Wakil,M. A. , Islam,M. A. , Silwal,A. and Sivapornsatian,J. (2011) , "PD controller for balancing an Inverted pendulum cart," ***Proceedings of the International Conference on Mechanical Engineering 2011 (ICME2011)***

1. (2008) , "Design, construction and performance study of parabolic type solar collector for the generation of superheated steam," ***International Conference of Mechanical Engineering*** , Department of Mechanical engineering, Bangladesh University of Engineering and Technology, Bangladesh