Department of Mechanical Engineering
Khulna University of Engineering & Technology
Khulna - 9203,Tel:041-769471 (191);Fax :041-774403

Dr. Md. Arifuzzaman
Professor
Research Area Composite Materials, Building Materials, Sandwich Structures

Biography

Md. Arifuzzaman an experienced academic with a proven history of working at the university since 2010. His research experiences include manufacturing and characterization of composite materials such as particulate composites, fiber-reinforced composites, and sandwich structures for applications in construction and building industries. He is skillful in manufacturing composite materials, testing their mechanical and thermal properties, designing experimental setups, characterizing materials using SEM and EDS, writing grant applications and research papers, etc. Prof. Arifuzzaman is also working as a Testing Officer at CRTS (Consultancy, Research and Testing Services) of the Department of Mechanical Engineering, KUET. He is a member of the Institution of Engineers (IEB), Bangladesh. He developed novel composites using expanded perlite particles and sodium silicate solution for building wallboard and ceiling tiles applications. He developed a predictive model for compressive strength based on the rule of mixtures. He modeled the foam and particle envelope densities and volume fractions theoretically for prediction and practical evaluation. A new evaluative method was developed for the calculation of volume fractions in the composites and validated against syntactic foams. He also theoretically conceptualized the plane stress and plane strain conditions for compressive strength and modulus of perlite syntactic foams, and their existence was experimentally verified for practical characterization. He identified the failure mechanism of perlite composites and their sandwich structure under flexural loading which gives the future direction of improvement. He found a unique diffusion behavior of the perlite/sodium silicate composite and investigated the method of finding the diffusion coefficients. Currently, He is working on the improvement of the mechanical properties of perlite/sodium silicate particulate composite materials. He is also working on the strengthening mechanisms of gypsum-based composites. Prof. Arifuzzaman has published 20 papers in reputed peer-reviewed journals and presented my work at 20 international conferences worldwide. He has examined 1 Ph. D. (Italy) and 3 M. Sc. Engineering theses (Bangladesh). He has taught several courses at the undergraduate and postgraduate levels and supervised more than 20 undergraduate (B. Sc. Engineering) and 1 postgraduate (M. Sc. Engineering) theses. He has been awarded several prestigious awards and scholarships throughout my academic career including three Best Paper Awards, the Postgraduate Research Prize, and the Prime Minister Gold Medal. My goal is to become a leader in teaching and research in the field of Construction Materials Engineering.

Education

Doctor of Philosophy in Mechanical Engineering
The University of Newcastle,Australia(2013-2017)
Master of Science in Mechanical Engineering
Khulna University of Engineering & Technology (KUET),Bangladesh(2010-2012)
Bachelor of Science in Mechanical Engineering
Khulna University of Engineering & Technology (KUET),Bangladesh(2006-2010)

Service Records

- **Professor**
  Department/Section: Mechanical Engineering
  Khulna University of Engineering & Technology *From 01-01-1970 to 01-01-1970*
- **Associate Professor**
  Department/Section: Mechanical Engineering
  Khulna University of Engineering & Technology *From 01-01-1970 to 01-01-1970*
- **Testing Officer**
  Department/Section: Mechanical Engineering
  Khulna University of Engineering & Technology *From 01-01-1970 to 01-01-1970*
  Working Area:Consultency, Research and Tesing Services
- **Assistant Professor**
  Department/Section: Mechanical Engineering
  Khulna University of Engineering & Technology (KUET) *From 01-01-1970 to 01-01-1970*
- **Lecturer**
  Department/Section: Mechanical Engineering
  Khulna University of Engineering & Technology (KUET) *From 01-01-1970 to 01-01-1970*

Research Interest

Composite Materials, Building Materials, Sandwich Structures
Lightweight particles filled building materials, Fibre reinforced composites, FEA of materials

Publication

Books

Journals

11. P. Karua and M. Arifuzzaman, "Compressive behavior of perlite/sodium silicate composite foam modified by boric acid," ***Metallurgical and Materials Engineering*** , Association of Metallurgical Engineers of Serbia AMES, vol. 28, no.1, pp.103-124, 2022 .

10. S. Shahriar, M. Arifuzzaman and P. Karua, "Mechanical and Energy Absorption Performance of Expanded Perlite Foam-filled Steel Tubes," ***Journal of Engineering Advancements*** , SciEn Publishing Group, vol. 3, no.1, pp.23-28, 2022 .

9. M. Arifuzzaman and H. S. Kim, "Evaluation of moisture diffusion characteristics and the effect of moisture treatment on flexural properties of expanded perlite-based building material," ***Journal of Building Physics*** , SAGE Publications, vol. 46, no.1, pp.95-118, 2022 .

8. P. Adhikary, M. Arifuzzaman and E. Kabir, "Compressive Properties of Expanded Perlite Based Particulate Composite for the Application in Building Insulation Board," ***Journal of Engineering Advancements*** , SciEn Publishing Group, vol. 1, no.1, pp.1-5, 2020 .

7. M. Arifuzzaman and H. S. Kim, "Plane Stress/Strain Compressive Behavior of Perlite Composite Foam," ***Journal of Testing and Evaluation*** , ASTM International, vol. 47, no.4, pp.2905-2925, 2019 .

Conference

9. P. Karua and M. Arifuzzaman, "Effects of boric acid content on water absorption and flexural properties of perlite/sodium silicate composites," ***International Conference on Mechanical Engineering and Renewable Energy (ICMERE 2021)***, 2021 .

8. P. Karua and M. Arifuzzaman, "Influence of Fiber Orientation on the Tensile and Flexural Properties of Jute Fiber Reinforced Polymer Composites," ***International Conference on Industrial & Mechanical Engineering and Operations Management (IMEOM2021)***, 2021 .

7. M. S. Duzzaman, M. Arifuzzaman and M. R. Islam, "Bending Behavior of Sandwich Structure Made of Aluminum Honeycomb Core and Steel Facing," ***6th International Conference on Mechanical Industrial & Energy Engineering (ICMIEE2020)***, 19-21 December, 2020 .

6. A. A. Abir, M. O. Faruk and M. Arifuzzaman, "Novel Expanded Perlite Based Composite using Recycled Expanded Polystyrene for Building Material Applications," ***6th International Conference on Mechanical Industrial & Energy Engineering (ICMIEE2020)***, 19-21 December, 2020 .

5. M. A. H. K. Shuvo and M. Arifuzzaman, "Numerical investigation of low velocity impact on polystyrene foam core based sandwich composites," ***International Conference on Mechanical, Industrial and Energy Engineering*** , Faculty of Mechanical Engineering, December 2018 .