

**ZAHNUPRIYA KALITA**  
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### **EDUCATIONAL QUALIFICATIONS:**

- Ph.D. (Mechanical Engineering), Tezpur University  
*Topic: Facility Layout Optimization Using Genetic Algorithm*
- M.Engg (Specialization - Mechatronics), Asian Institute of Technology, Thailand
- Bachelor of Engineering , Assam Engineering College

### **RESEARCH INTERESTS:**

- Optimization
- Mechatronics

### **WORK EXPERIENCE**

- **Research Assistant, Industrial Systems Engineering, Asian Institute of Technology, Thailand**  
Period: Aug 2011 to May 2012
- **Assistant Professor (adhoc) in Mechanical Engineering Department, Tezpur University**  
Period: January 2013 to August 2014
- **Assistant Professor (Regular) in Mechanical Engineering Department, Tezpur University**  
Period: August 2014 till date

### **SCHOLARSHIPS AND ACHIEVEMENTS**

- Fellowship for Masters from Asian Institute of Technology.

### **COURSES TAUGHT**

- ME 102- Engineering Mechanics
- ME 201- Solid Mechanics
- ME 534 – Mechatronics
- ME 561 – Experimental methods for solids and fluids
- ME 562 – Experimental methods in fluid and thermal engineering
- ME 521- Robotics
- ME 608 – Mechatronics and Industrial Automation
- ME 309- Systems and Control
- ME 421- Computer Graphics and Solid Modelling

## **BTECH PROJECTS SUPERVISED/SUPERVISING:**

- Design, Fabrication and Analysis of Regenerative Braking System.
- Scheduling and cost optimization of flexible manufacturing systems in a combination layout manufacturing plant.
- Design and fabrication of a robotic arm mounted on an Automated Guided Vehicle.
- Design and Fabrication of an Alternate Pedaling Mechanism.
- Design and Fabrication of an Automated Conveyor Belt System.
- Design and Fabrication of an Automated Seed Sowing Machine.

## **MTECH PROJECTS SUPERVISED/SUPERVISING:**

- Design and Analysis of a flywheel for Effective Kinetic Energy Storage.
- Design and Development of a Mechanism for enhancing Stability of Bicycle by Steering back Handlebar Automatically.
- Design and Development of a Mechanism for enhancing Stability of Female Bicyclists on Sudden Braking.

## **LIST OF PUBLICATIONS:**

### **Journal Publications**

1. **Z. Kalita** and D. Datta (2014). Solving the bi-objective corridor allocation problem using a permutation-based genetic algorithm. *Computers & Operations Research*, 52(Part-A):123-134.
2. **Z. Kalita** and D. Datta (2018). A constrained single-row facility layout problem. *International Journal of Advanced Manufacturing Technology*, 98(5-8):2173-2184.
3. **Z. Kalita**, D. Datta, and G. Palubeckis (2019). Bi-objective corridor allocation problem using a permutation-based genetic algorithm hybridized with a local search technique. *Soft Computing*, 23(3):961-986.

### **Conference Publications**

1. **Z. Kalita** and D. Datta (2017). Multi-objective optimization of the multi-floor facility layout problem . IEEE International Conference on Advances in Mechanical, Industrial, Automation and Management Systems (AMIAMS-2017), MNNIT Allahabad, India. 3-5 February 2017.
2. U. Arunav, B. Deka, M. Das and **Z. Kalita** (2017). Design of an alternate pedaling mechanism, in proceedings of the national conference on sustainable mechanical engineering: today and beyond held in Tezpur University, during 25-26<sup>th</sup> March, 2017.
3. **Z. Kalita** (2014). A Microparticle separation device using inertia combined dielectrophoresis technique for the separation of tumour cells from blood, in the proceedings of International Symposium on Aspects of Mechanical Engineering & Technology for Industry held in NERIST, Arunachal Pradesh, during 6-8th December, 2014.

### **Book Chapters**

1. Z. Kalita and **D. Datta** (2020). *Corridor allocation as a constrained optimization problem using a permutation-based multi-objective genetic algorithm*. In: Nature-Inspired Methods for

Metaheuristics Optimization. Part of the *Modeling and Optimization in Science and Technologies* book series, Springer; vol. 16, pages 335-358, ISBN: 978-3-030-26457-4 (Print), doi: [https://doi.org/10.1007/978-3-030-26458-1\\_19](https://doi.org/10.1007/978-3-030-26458-1_19).

2. Z. Kalita and D. Datta (2020). *The constrained single-row facility layout problem with repairing mechanisms*. In: Nature-Inspired Methods for Metaheuristics Optimization. Part of the *Modeling and Optimization in Science and Technologies* book series, Springer; vol. 16, pages 359-383, ISBN: 978-3-030-26457-4 (Print), doi: [https://doi.org/10.1007/978-3-030-26458-1\\_20](https://doi.org/10.1007/978-3-030-26458-1_20).

#### **SEMINARS/WORKSHOPS ATTENDED:**

1. 1 month Faculty Induction Program held at Teaching Learning Center, Tezpur University from 26<sup>th</sup> November to 26<sup>th</sup> December, 2018
2. 2 week Faculty Development Programme on “Foundation program in ICT for Education” organized by IIT Bombay from 8<sup>th</sup> March - 12 April, 2018.
3. 1 day seminar on “Aeronautical Systems” organized by ARP, AR&DB, DRDO, HQ, New Delhi, held at School of Engineering, Tezpur University on 8<sup>th</sup> October 2018.
4. 1 week SERB school on “Noise and Vibration Control” conducted by Mechanical Engineering Department, IIT Guwahati from 4<sup>th</sup>-8<sup>th</sup> December, 2017.
5. 2 week ISTE workshop on “Environmental Studies” held (under National Mission on Education through ICT) conducted by Indian Institute of Technology Bombay from 2-12 June, 2015.
6. 2 week Faculty Development Programme on “Current Approaches in Teaching and Research in Science and Technology” organized by the School of Engineering, Tezpur University from 15-27 December, 2014.
7. 1 week Short term course on “Introduction to Numerical, Computational and Experimental Mechanics” organized by Mechanical Engineering Department, Assam Engineering College, Guwahati, 9-13 December, 2014.
8. 2 week ISTE workshop on “Fluid Mechanics” held (under National Mission on Education through ICT) conducted by Indian Institute of Technology Kharagpur, 20-30 May, 2014.