

Dr. Mayuri Baruah

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Joining date: 06/06/2018
Specialization: Design and Manufacturing
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Vision

- To develop myself into a professor where I can impart my knowledge and experience for the betterment of students.
- To enhance the quality of instructions by integrating research in teaching through active learning components.
- To produce some quality publications addressing the fundamental issues in manufacturing.

Academic Qualifications

PhD, Mechanical Engineering (Design and Manufacturing Science), IIT Guwahati, Assam, India

Thesis: Experimental investigation and numerical modeling of Plasma and Laser micro welding processes.

Name of Examination	Board/University	Year of Passing
PhD	IIT Guwahati	January, 2017
BE	Dibrugarh University	2010
HS	AHSEC (Assam)	2006
HSLC	SEBA (Assam)	2004

Teaching Experience

- Assistant Professor (on contract), Mechanical Engineering Department, Assam Engineering College, Assam, from 5th January 2018 to 4th June 2018.
- Temporary faculty at NIT Raipur from 03/08/2017-03/01/2018.
- Virtual faculty gate coaching in mechanical engineering at Ufaber Edutech Pvt. Ltd. effective from 28th April, 2017.

- Assistant professor in Malla Reddy College of Engineering and Research from 20th January, to 24th July, 2017.
- Lecturer at Assam Institute of Technology from 1st July, 2010 to 30th November, 2010

Courses Taught

At NIT Jamshedpur

- Product Design & Development, Mtech 2nd Sem, Production and Industrial Engineering
- Manufacturing system, Mtech 1st Sem, Production and Industrial Engineering
- Non-traditional manufacturing process, Btech 3rd Year, Production and Industrial Engineering
- Rapid Prototyping, 4th Year, Btech 4th Year, Production and Industrial Engineering.
- Manufacturing Shaping and Joining, Btech 2nd Year, Mechanical Engineering
- Emerging Trends in Manufacturing Technology, Btech 4th Year, Production and Industrial Engineering.
- Metrology, Btech 2nd Year, Production and Industrial Engineering.
- Organizational Behaviour and Industrial Psychology, Btech 4th Year, Metallurgical & Materials Engineering.

Other Colleges

- Basic Mechanical Engineering UG Mining Engineering, NIT Raipur
- Workshop Technology-II UG Mechanical Engineering, Assam Engineering College
- Basic Mechanical Engineering, 1st Semester, NIT Raipur.
- Production Technology, 6th Semester, Mallareddy College of Engineering.
- Material Science, 4th Semester, Mallareddy College of Engineering.
- Strength of materials, Assam Institute of Technology.
- Thermodynamics, Assam Institute of Technology.

Research Interests:

Welding, Additive Manufacturing, Numerical Modelling, Fracture Mechanics, Advance Machining, Optimization, Python, Artificial Intelligence.

Publications List

Referred Journal

- **M. Baruah** and S. Bag: Influence of pulsation in thermo-mechanical analysis on laser microwelding of Ti6Al4V alloy, [Optics and Laser Technology](#), 90, 40 - 51, 2017.
- **M. Baruah** and S. Bag: Microstructural influence on mechanical properties in plasma microwelding of Ti6Al4V alloy, [Journal of Materials Engineering and Performance](#), 25(11), 4718 - 4728, 2016.
- **M. Baruah** and S. Bag: Influence of heat input in microwelding of titanium alloy by micro plasma arc, [Journal of Materials Processing Technology](#), 231, 100 - 112, 2016.
- S. Kumar, S. Bag and **M. Baruah**: Finite element model for femto second laser pulse heating using dual phase lag effect, [Journal of Laser Applications](#), 28(3), 032008:1 - 14, 2016.
- **M. Baruah** and S. Bag: Numerical modelling of heat transfer and fluid flow in laser microwelding, [International Journal of Mechatronics and Manufacturing Systems](#), 6(13), 310 - 334, 2013.
- **M. Baruah** and S. Bag: Characteristic difference of thermo-mechanical behavior in plasma microwelding of steels, [Welding in the world](#), 61(4), 857- 871, 2017.

- **M. Baruah**, S. Bag and S Kumar: Probing phase lag effect in ultra-short pulse laser heating of nano-film, *Manufacturing Letters*, 13, 6 -10, 2017.
- T. Saikia, **M. Baruah** and S. Bag: On the effect of heat input in plasma microwelding of maraging steel, *Proceedings of IMechE, Part B: Journal of Engineering Manufacture (SAGE)*, 233(3), 807-822, 2019.
- **M. Baruah**, S. B. Prasad, N. Tudu, B. Murmu, and S. Singh, S., 2020, “Experimental Investigation of Inconel Welded Joints Formed by Pulsed Micro Plasma Welding,” *Materials Today Proceedings* (Accepted on 7th July 2020)
- S. Tripathi, **M. Baruah** and R. Ballav: Mechanical and Microstructural Analysis of TIG Welding of 1 mm Thick Inconel 625. (Under Review)

Book Chapter

- Manufactured **Editor of the Book** “Next Generation Materials and Technologies” published in *Select Proceedings in Materials* by Springer, (Ongoing)
- **M. Baruah** and S. Bag: Laser Microwelding of Titanium, Application of Lasers in Manufacturing, edited by Prof. Dr. Uday S. Dixit, Prof. Dr. Shrikrishna N. Joshi, Prof. J. Paulo Davim, Springer, 2018.
 - N. Tudu, **M. Baruah** and S. B. Prasad: Influence of WEDM Parameters for Estimating the Surface Integrity of Laser Additive Hybrid Material, Springer, (accepted).
 - S. K. Lader, **M. Baruah** and R. Ballav: Under water Friction Stir Welding Tool of High Strength Aluminum Alloy, Springer, (accepted).

Referred Conference

- **M. Baruah** and S. Bag: Effect of peak power on joint characteristics of pulse laser welding of 0.5 mm Ti6Al4V sheets, AIMTDR 2016, 16th - 18th December, 2016, Pune.
- **M. Baruah** and S. Bag: Analysis of temperature of microplasma arc welding of 0.5 mm Ti6Al4V sheets, 1st International Conference on Materials, Manufacturing and Design Engineering (ICMMD 2016), 20th – 21st December, 2016, Vidyavihar, Raigad, Maharashtra, India.
- **M. Baruah** and S. Bag: Influence of gap conductance in thermal analysis of laser transmission welding, Recent Trend in Mechanical Engineering, 21st – 22nd October, 2016, Institute of Engineers (India, Assam State Centre), Guwahati.
- **M. Baruah** and S. Bag: Micro-plasma Arc Welding of Ti6Al4V sheets, 3rd International Conference on Lasers and Plasma Application in Materials Science (LAPAMS), 15th – 17th January, 2015, Kolkata
- R. Majumdera, **M. Baruah** and S. Bag: Influence of plasma gas flow rate on weldinduced distortions in plasma microwelding of low carbon steel, 30th National Conference of Production Engineers, Agartala, Tripura July 18-19, 2015
- **M. Baruah** and S. Bag: Investigation on micro plasma welding of titanium alloy, Advancements in Welding, Cutting & Surfacing Technologies for Improved Economy, Reliability & Sustainable Environment, IIW International Congress 2014, 9th - 11th April, 2014, New Delhi.
- **M. Baruah** and S. Bag: Experimental and Numerical Investigation of Micro Plasma Welded Ti-6Al-4V sheets, International Symposium on Aspects of Mechanical

Engineering & Technology for Industry (AMETI 2014), 6th – 8th December, 2014, NERIST, Arunachal Pradesh.

➤ **M. Baruah** and S. Bag: A Perspective on Thermal Analysis of Laser Transmission Welding, National Conference on Manufacturing: Vision for Future (MVF 2013), IIT Guwahati, Assam, 12th - 13th October, 2013.

➤ B. Kumar, **M. Baruah** and S. Bag, On the Effect of Heat Input in Cooling Rate and Microstructure of Laser Welded Ti-6Al-4V Alloy, Advances in Materials & Processing Technologies, 11th – 14th December, 2017, Chennai, India.

➤ S. Tripathi, **M. Baruah** and R. Ballav: Experimental Investigation of Micro TIG welding of Inconel 625, COPEN-2019, 11th – 13th December, 2019, IIT Indore.

➤ N. Tudu, **M. Baruah** and S. B. Prasad: Morphological Study of Deposited IN625 and SS304L by Laser Directed Energy Deposition Method, 5th International Congress, (IC2020), 6th – 8th February, 2020 IIW India, Mumbai

➤ S. K. Lader, **M. Baruah** and R. Ballav: Effect of Friction Stir Welding Tool on Lap Joint of High Strength Aluminum Alloy, 5th International Congress, (IC2020), 6th – 8th February, 2020 IIW India, Mumbai

Students Guided

PhD	Nehem Tudu (On Going)	Thermo-Mechanical Analysis of Hybrid Material Additive Manufacturing
	Surendra Kumar Lader (On going)	Improvement of Dissimilar Weld joint by FSW
M.Tech	Sourabh Tripathi (Guided)	Mechanical and Microstructural Analysis of Micro Joining on Inconel 625 by Micro TIG Welding
	Surendra Kumar Lader (Guided)	Joining of Aluminum Alloy 2024-T851 by Under Water FSW
	Rahul Srivastav (collaborative work with Dr. Rajneesh Kumar, CSIR-NML, Jamshedpur)	Fatigue Failure Analysis of Heat Treated Steel Alloy by Numerical Method
	Binay Kumar Murmu	Experimental Analysis of Micro Plasma Arc Welding of Superalloys
Btech	9 completed	

Project:

Experimental Investigation of Dissimilar Joints of Steel to Aluminum Alloy Reinforced with Additives by Vibration Assisted Micro Plasma Arc Welding Process (1 Year) sponsored by TEQIP –III.

Laboratory Development

- Advanced Welding Laboratory
- Non Tradition Manufacturing Laboratory

Administrative Responsibility

- Warden, Ambedkar hall of residence, NIT Jamshedpur since 06th July 2018.
- Faculty Advisor of Btech 3 rd year, Production and Industrial Engineering
- Member of departmental NBA team, Production and Industrial Engineering, NIT Jamshedpur.
- Member of Gender studies Cell, NIT Jamshedpur.

Worshop/ Seminar/ Conference Organised

- Convener of a 6 days workshop on **Materials, Manufacturing And Modelling-Its Advances and Constraints (MMMAC-2019)** sponsored by TEQIP-III, ANITA ENTERPRIZES, Fronius organized at NIT Jamshedpur (25th May-30th May, 2019).
- Organizing Secretary of the **National Conference on “Research and Developments in Material Processing, Modelling and Characterization 2020” (26th -27th August, 2020) sponsored by TEQIP-III.**
- Co-ordinator of the seminar TEQIP-III sponsored one day seminar on Environment, Air pollution and Noise.

Guest Lectures delivered

- Invited Lecture at the Seminar at Weld 2019 by IIW Kolkata on 23 Feb 2019.
- Invited Speaker Lecture at FDP (15-19th July 2019) in WIT Dehradun
- Invited Speaker at Annual Welding Seminar 2019- Maintenance, Repair & Reclamation Of Components By Welding (A review on the future of welding-Automation, Robotics and Simulation).
- Expert Talk on **“Evolution of Welding Process (through the eye of a Researcher) Details of Event:** Invited Lecture at Workshop on “Future of Welding-Automation, Robotics and IOT” organized by MSME Technology Center, Jamshedpur (Indo Danish Tool Room)
- Expert lecture for the STTP on Advanced Manufacturing Processes and Metallurgical Characterization during 5th – 9th Dec 2017, NIT Raipur
- Guest Speaker at Chaibasa Engineering College, Jharkhand on the topic “Future of welding-Automation, Robotics and Simulation”
- Invited Speaker on the workshop Advancements and Future Research Trends in Laser based Manufacturing Processes (AFRLMP-2020) on the topic Finite Element Modelling of Metals and Polymeric Materials by Laser Based Micro Welding process, organized by NERIST, AP (03/09/2020)

Courses attended.

- TEQIP Short term course on Advances in Welding and Joining Technologies conducted by ME Department and KIC, IIT Guwahati, ASSAM.
- Short Term Course on Advanced Machining & Finishing Processes, 15-16th Dec. 2014.
- QIP Short Term Course on Micro-manufacturing Technologies, 23-27 March 2015.
- Short term Course on **Additive Manufacturing**, 2-7th April, 2018, AMSI.
- Webinar on GIS Application in Transportation Engineering (30th June, 2020)

- Using Gleeble Casting and Semi – Solid Processing Simulations (9th July, 2020) and “MICROBES”- Impacts and Recent Approaches (11th July, 2020)
 - Webinar on Using the Gleeble to Study Cracking in Welds, on 2nd July, 2020, by Professor John C. Lippold, Ohio State University
 - 2nd One Week International Faculty Development Program – ONLINE on "***Role of Materials and Processing in Additive Manufacturing: 3D Printing to Industry-2020***", from 19th - 24th July 2020 organized by Department of Mechanical Engineering, GLA University, Mathura in association with Indian Institute of Metals (IIM), Mathura Chapter.
 - FDP/Workshop on Introduction to Machine Learning Using Python (11th, 12th, 18th, 19th, 20th July 2020) by NIT Jalandhar in association with Soft Computing Research Society, New Delhi.
 - **Materials Challenges in Post Covid Situation** *Talk by* Dr. Debashish Bhattacharjee Vice President Technology and New Materials Business TATA Steel Ltd. July 25, 2020 | 12.00 Hrs
 - A special section focused on the world of 2D materials by Dr Golam Haider, Research Scientist at the J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic organized Springer.
 - **Webinar on Aluminium Welding** on Apr 17, 2020 3:00 PM, **Fronius India Private Limited**
- [Membership/ Fellowship in Professional Bodies](#)
- Life Time Member of Indian Institutions of Engineers.
 - Life Time Member of Indian Institute of welding
 - INSC Professional Membership
 - Professional member of IFERP.

[Awards](#)

InSc Young Researcher Award 2020