BIO-DATA of Dr. UDAY SHANKER DIXIT (updated on January 11, 2022)

01. Name: Dr. Uday Shanker Dixit

02. Date of Birth: July 5, 1967

03. Father's Name: Mr. Krishna Shanker Dixit

04. Permanent Address: E-28, Larica Green Valley, Dharapur, Guwahati, Kamrup (Rural), Assam, India

05. Address for Correspondence: Department of Mechanical Engineering, Indian Institute of Technology, Guwahati-781 039 (Assam), India

06. E-mail Addresses: uday@iitg.ac.in, usd1008@yahoo.com

07. Phone: +91-(0361) 2582657, 9954498115 (mobile), (0361) 2584657 (Residence)

08. Fax: +91-(0361) 690762, 2582699

09. Marital Status: Single

10. Academic and Professional qualifications:

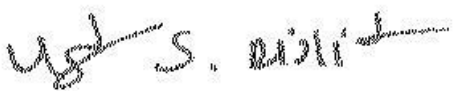
S. No.	Degree	College	Year of passing	Division	Grade/Marks
1.	High School	U. P. Board	1981	Ist with distinction in Science, Mathematics, English	72.4%
2.	Intermediate	U. P. Board	1983	Ist with distinction in Mathematics, Physics, Chemistry	73.4 %
3.	B.E (Mechanical)	University of Roorkee	1987	Ist with Honors	79.3%
4.	M.Tech (Mechanical)	IIT Kanpur	1993		CPI 10.0 out of 10.0
5.	Ph.D. (Mechanical)	IIT Kanpur	1998		CPI 10.0 out of 10.0

11. Professional Experience:

S. N.	Designation	Organization	Period	Nature of work
1	Dy. Engineer	HMT Ltd., Pinjore	July 87 to July 91	Design of machine tools
2	Teaching assistant	IIT Kanpur	August 91 to January 93	Assignment preparation and correction
3	Hydraulic Engineer	Indomag Steel Technology, New Delhi	February 93 to July 93	Design of hydraulic systems
4	Research Scholar	IIT Kanpur	August 93 to July 97	Research in the area of metal forming, teaching assistance
5	Sr. Project Associate	IIT Kanpur	August 97 to March 98	Aeronautical Development Agency project involving elasto-plastic dynamic contact problem
6	Lecturer	IIT Guwahati	6th April 98 to 22nd July 98	Teaching and research
7	Assistant Professor	IIT Guwahati	23rd July 98 to 3 May 2002	Teaching and research
8	Associate Professor	IIT Guwahati	4th May 2002 to 19 February 2007	Teaching and research
9	Professor	IIT Guwahati	20th February 2007 to 28th February, 2013	Teaching and research
10	Professor (HAG scale)	IIT Guwahati	1st March 2013	Teaching and research

12. R&D Experience: (See Annexure-I)
13. M. Tech. projects guided: 51 (see Annexure-II)
14. Ph.D. Theses guided: 15 (see Annexure-II), 8 ongoing
15. Publications: Books: 17, Book Chapters: 40, Papers: Journal (136), Conferences (120), Technical Reports (7) (see Annexure-III)
16. Sponsored projects (as PI and Co-PI): 19 (see Annexure-IV)
17. Visits, talks and organization of professional events: (see Annexure-V)
18. Courses taught: 22 different courses (see Annexure-VI)
19. Own Ph. D. Work (1993-1997): FE analysis of rolling (see Annexure-VIII)
20. Laboratory experience: CAD, Mechatronics, Workshop (see Annexure-IX)
21. Administrative Experience: Major experience as HOD of Mechanical Engineering Department at IIT Guwahati from March 2006 to March 2011, Officiating Director of CIT Kokrajahr, February 2014 to May 2015, Head of Center for Indian Knowledge Systems from April 2021 (see Annexure-X)
22. B.Tech. Projects: 37 (See Annexure-XI)
23. Other Activities: (See Annexure-XII)
24. Awards, Honors and Recognizable Professional Activities:
(1) National Scholarship from 1981 to 1987
(2) Honorary Fellow Member of Indian Welding Society
(3) Felicitation by National Coordinator of NPTEL for figuring of the course on Engineering Mechanics (co-author: Dr. G.S. Kumar) in the top five NPTEL course from IITG in terms of "Viewership".
(4) Best paper award to the paper: V. Yadav, A.K. Singh and U.S. Dixit, Determination of friction during cold and warm flat rolling processes, Proceedings of Thirtieth National Convention of Production Engineers and National Seminar on Sustainable Manufacturing, July 18-19, 2015, The Institution of Engineers (India), Tripura State Center, Agartala.
(5) Served as Vice-President of AIMTDR in December 2016 to December 2021
(6) Visitor's nominee to IIT Hyderabad in Design Department from April 2017
(7) Visitor's nominee to IIT(ISM) Dhanbad since June 2017
(8) Visitor's nominee to IIT(Kharagpur) since January 2018
(9) Visitor's nominee to IIT(Kanpur) since August 2018, also of all NITs
(10) Member of Board of Governors of IIT Kanpur since July 2018
(11) Best paper award to G.C. Verma, P.M. Pandey and U.S. Dixit, Experimental investigations to evaluate machining accuracy of ultrasonic assisted milling on thin-walled structures, 7th International and 28th All India Manufacturing Technology, Design and Research (AIMTDR) Conference, December 13-15, 2018, Anna University, Chennai.
(12) Best paper award to A. Bisht, A. Roy, U. S. Dixit, S. Suwas and V.V. Silberschmidt, Small-scale machining simulations, 2nd International Conference on Computational Methods in Manufacturing (ICCMM2019), March 8-9, 2019, IIT Guwahati.
(13) Best teacher award by the department for teaching Continuum Mechanics in January-May 2020.
(14) Best paper award to V. Kumar and U.S. Dixit, Optimization of Process Parameters in Laser Bending Process Considering Microhardness, 8th International and 29th All India Manufacturing Technology, Design and Research (AIMTDR) Conference, December 9-11, 2021, PSG Tech & PSG iTech, Coimbatore.

I undertake that information provided above is correct to the best of my knowledge and belief.



Place: IIT Guwahati Date: January 11, 2022

Annexure-I
Details of Research/Development/Industrial Experience

I worked in HMT Pinjore since July 1987 to July 1991 and was involved in the design and development of machine tools. I joined M. Tech. program in the Department of Mechanical Engineering at IIT Kanpur in July 1991 and completed it in January 1993. Thereafter, I joined Indomag Steel Technology as an Engineer.

In July 1993, I joined Ph.D. program in the Department of Mechanical Engineering at IIT Kanpur and submitted Ph.D. thesis in July 1997. Prof. P. M. Dixit was my thesis supervisor and research was in finite element analysis of rolling process with fuzzy parameters and study of anisotropic effects and residual stresses. Based on the research, two papers were published in the International Journal of Machine Tools & Manufacture and one paper in International Journal of Mechanical Sciences.

Simultaneously during Ph.D., I worked as a Project Engineer (without pay) in a consultancy project of HAL, with Dr. P. M. Dixit as the main investigator. The work was in the stress and vibration analysis of pump. It was a part of Technological Development Mission (TDM) project.

After my thesis submission, I worked on ADA sponsored project titled "Analysis of bird impact with the wind-screen of the light combat aircraft". This project involved elasto-plastic contact and dynamic analysis using FEM. The work was done in IIT Kanpur and ADA.

I joined Indian Institute of Guwahati on 6th April 1998 and continued my work in the above-mentioned areas. I have set up two laboratories-CAD lab and Mechatronics lab. I have completed sponsored projects funded by DST, MHRD, Ministry of Social Justice and Empowerment and ADA, Bangalore. I have also carried out consultancy work. I was Head of Department of Mechanical Engineering Department at Indian Institute of Technology, Guwahati from March 2006 to March 2009.

My current research interest is finite element method and soft computing applications in a wide variety of problems in manufacturing and design. I am also working in Mechatronics.

Industrial experience- 4.5 years
Research experience in Academic Institutions (excluding Ph. D. and M. Tech.)- about 24 years.

Annexure-II
Details of Ph.D. and M. Tech. Theses Supervised

Ph.D. Theses:

1. P.P. Gudur, 2008, Soft Computing Assisted Modeling of Symmetric and Asymmetric Rolling Processes (defended in January 2009).
2. D.K. Sarma, 2009, Experimental Study, Neural Network Modelling and Optimization of Environment-Friendly Air-cooled and Dry Turning Processes (defended in April 2010)
3. M. Hazarika, 2010, A Fuzzy Set Based Setup Planning Expert System Considering Fixturing Aspects for Machining of Prismatic Parts, (defended in April 2011)
4. Ratnakar Das, 2012, Experimental Study and Simulation of Multi-Hole Extrusion Process (defended in April 2012)
5. M. Chandrasekaran, 2014, Cloud Computing Based Machining Optimization (defended in May 2014). Co-supervisor: Dr. M. Muralidhar
6. S. Mahto, 2015, Shape Optimization of Revolute-Jointed Flexible Manipulators (defended in March 2016). Co-supervisor: Dr. A.K. Gogoi
7. S. M. Kamal, 2016, A Theoretical and Experimental Study of Thermal Autofrettage Process (defended in June 2016)
8. Vinod Yadav, 2016, Inverse Estimation of Material Parameters, Convective Heat Transfer Coefficients and Friction in Warm Flat Rolling (defended in August 2016). Co-supervisor: Dr. A.K. Singh
9. R. Kalidasan, 2017, Experimental Investigations on Double Tool Turning Process (defended in September 2017). Co-supervisor: Dr. S. Senthilvelan
10. B.N. Fetene, 2018, A Study on the Performance of Laser Based Bending (defended in July 2018)
11. W. G. Jiru, 2018, Laser Surface Alloying of Aluminum and Surface Melting of Al-12Si-4Cu-1.2Mn Alloy (defended in December 2018). Co-Supervisor: Dr. M. Ravi Sankar
12. Polash P. Dutta, 2019, Enhancement of Accuracy and Efficiency of Laser Based Bending and Straighening Processes (defended in May 2019). Co-Supervisor: Dr. K. Kalita
13. Rajkumar Shufen, 2019, Thermally Assisted Autofrettage of Thick Cylinders (defended on 6th March 2020)
14. Vikash Kumar, 2020, Modeling and Optimization of Single-Pass Laser Bending with Inverse Estimation (defended on 19th May 2020).
15. Amit Raj, 2020, Strength of enhancement of autoclaved aerated concrete (AAC) block and its masonry (defended on 22nd December 2020)

M.Tech. Theses

S. No.	Name of student	Thesis title	Year	Co-Supervisor
1.	P. Madhu Sudhan Rao	Determination of material parameters through the study of indentation of the material by a sphere	2000	
2.	Srinivasa Rao Natra	Adaptive p-refinement scheme for linear finite element analysis	2001	
3.	Sukesh Babu Chennuri	Design and fabrication of a 3-axis robot using mechatronics approach.	2001	Dr. A. K. Gogoi
4.	D. K. Sarma	Design and fabrication of a cold rolling mill using a fuzzy set based methodology	2001	Dr. P. S. Robi
5.	K. A. Risbood	On-line prediction of surface finish, dimensional deviation and tool flank wear in turning process	2002	Dr. A. D. Sahasrabudhe
6.	E. Sai Prasad	Study of deformation fields in cold flat rolling using finite element method	2002	Dr. P. S. Robi

7.	Karimulla Shaik	Development of an adaptive p-refinement scheme for linear and non-linear finite element analysis	2002	Dr. S. K. Dwivedy
8.	Sujeet Chandra	Isoparametric p-refinement finite element analysis and neural network modeling of cold flat rolling	2003	
9.	Devesh Kumar Ojha	Soft computing based optimization of the turning process	2004	
10.	Dushyant Kumar	Analysis of cold foil rolling and neural network modeling	2004	
11.	Jagu Srinivasa Rao	Solution of heat conduction and torsion problems using radial basis function neural networks	2004	
12.	Naga Raju Abburi	Application of soft computing techniques in the surface roughness prediction and optimization of turning process	2005	
13.	Gunjal Sandip Kumar	Finite element analysis and shape optimization of rotating beams	2005	
14.	Ashok Kumar Alwal	Implementation of radial basis function collocation method for solving torsion, heat conduction and plate bending problems	2005	
15.	Chandrakant Maheshwari	Prediction of the dimensional deviation in turning process using FEM	2006	
16.	Mahadevan P.	Numerical and experimental study of axisymmetric cold forging process	2006	Dr. P.S. Robi
17.	Salunkhe Milind Atmaram	Analysis of cold flat asymmetric rolling process	2006	
18.	Neeraj Carpenter	Finite Element Analysis and Shape Optimization of 2-link Planar Flexible Robot Manipulator	2007	Dr. S. K. Kakoty
19.	Shounak Basak	Optimization of turning processes	2007	
20.	Moode Ramamurthy Naik	Neural Network Modeling of Surface Roughness and Cutting Forces in an End-Milling Process	2007	Dr. S. Deb
21.	Manoj Kumar Sinha	Modelling and Experimental Investigation of Multi-Hole Extrusion Process	2008	Dr. S. Deb
22.	Kamble Ajinath Hanmant	Application of Strain Gradient Plasticity Theory in Bulk Micro-Manufacturing Processes	2008	
23.	G. R. Santosh Kumar	Estimation of beam traverse speed in the laser forming by using FEM with online learning	2008	
24.	Kaustubh Acharyya	Effect of additives on the bond strength properties of araldite adhesive	2009	Dr. A. Chattopadhyay
25.	Pavan Kumar Konathala	Inverse determination of applied heat flux and maximum temperature developed during laser forming	2009	
26.	Mane Umesh Pandurang	Exploration of new methods for assessing withering level during black tea manufacturing	2009	
27	Anand Kumar Verma	Experimental study and simulation of extrusion process	2009	
28	Sandip Rudha Budhe	Experimental study on effect of surface roughness on adhesive bond strength	2009	
29	Mahat Das	A study of microstructure evolution in cold flat rolling process	2010	
30	V. Thamarai Selvan	Modeling of thermal stresses in a thick walled cylinder	2011	
31	Hemanth Kumar V.	An experimental study on the bending of steel sheets using CO_2 laser	2011	Dr. S.N. Joshi

32.	Vinod Yadav	Determination of material parameters and friction coefficient in cold flat rolling by inverse modelling	2011	Dr. A.K. Singh
33.	Tomi Ado	Application of fuzzy set based queuing theory in the design of a warehouse	2012	
34.	Anil Kumar Mishra	Inverse determination of parameters during laser forming	2012	
35.	Kunwar Singh	Effect of lime coating on laser bending process	2013	Dr. S.N. Joshi
36.	Naveen Kumar Singh	Online monitoring of cutting forces in a turning operation using bridge current of an induction motor with bridge configured winding	2013	Dr. K. Kalita
37.	Nayan Baishya	Modeling and Optimization of Pressure Vessel under hermos-elastic condition	2013	Dr. D. Sharma
38.	Aghyad Eideh	Determination of parameters during laser bending by inverse analysis	2014	
39.	Sunil Kumar Singh	Experimental investigation on the effect of different coatings on laser forming of mild steel sheets	2014	Dr. S.S. Gautam
40.	Pramod Kumar Sahu	Estimation of temperature distribution in laser line heating	2015	
41.	Saurabh Garg	Straightening bent sheets using laser line heating and friction stir processing	2016	Dr. S.N. Joshi
42.	Anup Kumar	Manufacturing and characterization of epoxy based composite utilizing waste metal chips and bamboo	2016	Dr. A. Ch. Borsaikia
43.	Soma Mallikarjuna	Experimental determination of parameters for a micro-modeling based failure criterion for AAC block masonry shear wall	2017	Dr. A. Ch. Borsaikia
44.	Arpit Tripathi	Implementation of yield functions for sheet forming simulations	2019	Dr. R. Ganesh Narayanan
45.	Vipul Kumar	Measurement of residual stresses	2020	
46.	Snehal Arun Shende	A decision support system for purchasing a 3D printer	2020	
47.	Swapnil Kumar Sahu	Energy audit in manufacturing of autoclaved aerated concrete blocks	2020	Dr. A. Ch. Borsaikia
48.	Aditya Nema	Design of an oil tank cleaning system	2021	
49.	Jedhe Yashwant Vilas	Planning of machine maintenance based on failure probability estimation	2021	
50.	Alok Kumar	Finite-Element-Modelling of Open-Die Forging for Studying the Influence of Combined Loading	2021	
51.	Yadav Sanjeevkumar Surendrabhai	Conceptual design of a rescue robot	2021	

Number of Ph. D. projects in progress: 8

Annexure –III
Publications

Books:

1. P.M. Dixit and U.S. Dixit, 2008, Modeling of Metal Forming and Machining Processes: By Finite Element and Soft Computing Methods, Springer, London.
2. U.S. Dixit, 2009, Finite Element Methods for Engineers, Cengage Learning, New Delhi and Singapore.
3. U.S. Dixit, D.K. Sarma, J. Paulo, Davim, 2012, Environmentally Friendly Machining, Springer, New York.

4. U.S. Dixit (editor) and R. Ganesh Narayanan (editor) (2013), Metal Forming: Technology and Process Modelling, McGraw-Hill Education, Noida.
5. P.M. Dixit and U.S. Dixit, 2015, Plasticity: Fundamentals and Applications, CRC Press, Boca Raton.
6. Manjuri Hazarika and Uday Shanker Dixit, 2015, Setup Planning for Machining, Springer, New York.
7. S.N. Joshi (editor) and U.S. Dixit (editor), 2015, Lasers Based Manufacturing, 5th International and 26th All India Manufacturing Technology, Design and Research Conference, AIMTDR 2014, Springer, New Delhi.
8. R.G. Narayanan (editor) and U.S. Dixit (editor), 2015, Advances in Material Forming and Joining, 5th International and 26th All India Manufacturing Technology, Design and Research Conference, AIMTDR 2014, Springer, New Delhi.
9. U.S. Dixit, M. Hazarika and J.P. Davim, 2017, A Brief History of Mechanical Engineering, Springer, Switzerland.
10. S.S. Pande (editor) and U.S. Dixit (editor), 2018, Precision Product-Process Design and Optimization: Select Papers from AIMTDR 2016, Springer, Singapore.
11. U.S. Dixit (editor) and R. Kant (editor), 2018, Simulations for Design and Manufacturing: Select Papers from AIMTDR 2016, Springer, Singapore.
12. U.S. Dixit (editor) and R. Ganesh Narayanan (editor), 2019, Strengthening and Joining by Plastic Deformation: Select Papers from AIMTDR 2016, Springer, Singapore.
13. U.S. Dixit (editor), S.N. Joshi (editor) and J. Paulo Davim (editor), 2019, Application of Lasers in Manufacturing: Select Papers from AIMTDR 2016, Springer, Singapore.
14. U.S. Dixit, S.M. Kamal and R. Shufen, 2019, Autofrettage Processes: Technology and Modelling, CRC Press.
15. U.S. Dixit (editor)and S.K. Dwivedy (editor), 2020, Mechanical Sciences: The Way Forward, Springer, New Delhi, ISBN 978-981-15-5711-8.
16. U.S. Dixit (editor), 2020, Path of Progress: A Voyage of Mechanical Engineering in Sixth IIT, Ishika Book Distributors, Agra. ISBN: 978-93-87697-80-5. (It is a book published on the occasion of Silver Jubilee of the Department of Mechanical Engineering, IIT Guwahati.)
17. B. Kuriachen, J. Mathew and U.S. Dixit, 2021 (editor), Electric Discharge Hybrid-Machining Processes: Fundamentals and Applications, CRC Press, Boca Raton.

Book Chapters:

1. S. Deb and U.S. Dixit, 2008, Intelligent Machining: Computational Methods and Optimization, Chapter 12 in Machining: Fundamentals and Recent Advances, edited by J. Paulo Davim, Springer London.
2. U.S. Dixit, 2009, Application of neural networks and fuzzy sets to machining and metal forming, Chapter 1, in Artificial Intelligence in Manufacturing Research, edited by J. Paulo Davim, Nova Science Publishers, USA.
3. U.S. Dixit, 2010, Finite element modeling of rolling processes, Chapter 4 in Finite Element Method in Manufacturing Processes, edited by J. Paulo Davim, ISTE, Wiley.
4. M. Chandrasekaran, M. Muralidhar, C. Murali Krishna, U.S. Dixit (2012), Online machining optimization with continuous learning, in Computational Methods for Optimizing Manufacturing Technology: Models and Techniques, ed. J. Paulo Davim, IGI Global, Hershey.
5. U.S. Dixit and R. Das (2013), Microextrusion, in Micromanufacturing Processes, ed. V.K. Jain, CRC Press, Boca Raton, Florida.
6. U.S. Dixit, S.N. Joshi and Hemanth Kumar V. (2013), Microbending with LASER, in Micromanufacturing Processes, ed. V.K. Jain, CRC Press, Boca Raton, Florida.
7. U.S. Dixit (2012), Mechatronics Education, in Mechanical Engineering Education, ed. J. Paulo Davim, ISTE Wiley, London, UK.
8. R. Ganesh Narayanan and U.S. Dixit (2013), Metal Forming Processes, in Metal Forming: Technology and Process Modelling, ed. U. S. Dixit. R. Ganesh Narayanan, McGraw-Hill Education, Noida.
9. U.S. Dixit and R. Ganesh Narayanan (2013), Modelling of Metal Forming Processes, in Metal Forming: Technology and Process Modelling, ed. U. S. Dixit. R. Ganesh Narayanan, McGraw-Hill Education, Noida.
10. U.S. Dixit (2013), Epilogue in Metal Forming: Technology and Process Modelling, ed. U. S. Dixit. R. Ganesh Narayanan, McGraw-Hill Education, Noida.

11. A. Eideh, U.S. Dixit and Raghu Echempati (2015), A Simple Analytical Model of Laser Bending Process, in Lasers Based Manufacturing, 5th International and 26th All India Manufacturing Technology, Design and Research Conference, AIMTDR 2014, Springer, New Delhi.
12. S.S. Gautam , S. K. Singh and U.S. Dixit (2015), Laser Forming of Mild Steel Sheets using Different Surface Coatings, , in Lasers Based Manufacturing, 5th International and 26th All India Manufacturing Technology, Design and Research Conference, AIMTDR 2014, Springer, New Delhi.
13. B. N. Fetene and U. S. Dixit (2015), Finite Element Simulations of Laser Bending of Small Sized Sheets, in Lasers Based Manufacturing, 5th International and 26th All India Manufacturing Technology, Design and Research Conference, AIMTDR 2014, Springer, New Delhi.
14. W.G. Jiru, M.R. Sankar and U.S. Dixit (2015), Surface Alloying of Aluminum with Copper using Co_2 Laser, in Lasers Based Manufacturing, 5th International and 26th All India Manufacturing Technology, Design and Research Conference, AIMTDR 2014, Springer, New Delhi.
15. V. Yadav, A. K. Singh, U. S. Dixit (2015), An efficient inverse method for determining the material parameters and coefficient of friction in warm rolling process, in Advances in Material Forming and Joining, 5th International and 26th All India Manufacturing Technology, Design and Research Conference, AIMTDR 2014, Springer, New Delhi.
16. S.M. Kamal and U.S. Dixit (2015), Feasibility Study of Thermal Autofrettage Process, , in Advances in Material Forming and Joining, 5th International and 26th All India Manufacturing Technology, Design and Research Conference, AIMTDR 2014, Springer, New Delhi.
17. Ravi Kant, S.N. Joshi and U.S. Dixit (2015), Research issues in the laser sheet bending process, Chapter 4, pp. 73-95, in Materials Forming and Machining: Research and Development, edited by J. Paulo Davim, Woodhead Publishing
18. U.S. Dixit, V. Yadav and A.K. Singh (2016), Estimation of temperature in flat rolling, in Rolling of Advanced High Strength Steels: Theory, Simulation and Practice, edited by Jingwei Zhao and Zhengyi Jiang, CRC Press.
19. U.S. Dixit (2016), Some Strategies for Achieving Green Manufacturing, Annual Technical Volume of Production Engineering Board, Vol. 1, pp. 58–63.
20. R. Kalidasan, S. Senthilvelan and U.S. Dixit, 2016, Double-tool turning, in Metal Cutting Technologies: Progress and Current Trends, edited by J. Paulo Davim, De Gruyter, Oldenbourg, Berlin.
21. Varun Sharma, Pulak M. Pandey, Uday S. Dixit, Anish Roy, Vadim V. Silberschmidt, 2018, Ultrasonic assisted turning: a comparative study of surface integrity, Precision Product-Process Design and Optimization: Select Papers from AIMTDR 2016, Edited by S.S. Pande and U.S. Dixit, Springer, Singapore, pp. 337-360.
22. S.M. Kamal and U.S. Dixit, 2019, Enhancement of fatigue life of thick-walled cylinders through thermal autofrettage combined with shrink-fit, Strengthening and Joining by Plastic Deformation: Select Papers from AIMTDR 2016, Edited by U.S. Dixit and R. Ganesh Narayanan, Springer, Singapore, pp. 1-30.
23. T.K. Gogoi and U.S. Dixit, 2018, Basics and applications of thermal engineering, Introduction to Mechanical Engineering, Edited by J. Paulo Davim, Springer, London, pp. 137-178.
24. S.M. Hazarika and U.S. Dixit, 2018, Robotics: history, trends and future directions, Introduction to Mechanical Engineering, Edited by J. Paulo Davim, Springer, London, pp. 213-239.
25. M. Das and U.S. Dixit, 2018, Advanced machining processes, Introduction to Mechanical Engineering, Edited by J. Paulo Davim, Springer, London, pp. 269-296.
26. M. Hazarika, U.S. Dixit and J. Paulo Davim, 2019, History of production and industrial engineering through contributions of stalwarts, Manufacturing Engineering Education, Chandos Publishing.
27. Arun C. Borsaikia, Anup Kumar, Amit Raj, Uday S. Dixit, Development of Epoxy Based Composites Using Bamboo and Waste Metal Chips, In: In: Hashmi, Saleem and Choudhury, Imtiaz Ahmed (eds.). Encyclopedia of Renewable and Sustainable Materials, Vol. 1, pp. 181–195. Oxford: Elsevier. 2020, https://doi.org/10.1016/B978-0-12-803581-8.11172-5. ISBN 9780128035818, http://www.sciencedirect.com/science/article/pii/B9780128035818111725)
28. Chu X, Zhang J, Dixit U.S., Gu P. 2019. A precise identification and matching method for customer needs based on sales data, Advances in Mechanical Design, Ed. J. Tan, Springer, pp. 102-112 (based on conference paper).
29. U.S. Dixit, 2020, Modeling of metal forming: a review, in Mechanics of Materials in Modern Manufacturing Methods and Processing Techniques, edited by V. Silberschmidt, Elsevier, London. https://doi.org/10.1016/B978-0-12-818232-1.

30. U.S. Dixit, R. Shufen, 2020, Finite element method modeling of hydraulic and thermal autofrettage processes, in Mechanics of Materials in Modern Manufacturing Methods and Processing Techniques, edited by V. Silberschmidt, Elsevier, London. https://doi.org/10.1016/B978-0-12-818232-1.
31. U.S. Dixit, V. Yadav, P.M. Pandey, A. Roy, V.V. Silberschmidt, 2020, Modelling of friction in manufacturing processes, in Mechanics of Materials in Modern Manufacturing Methods and Processing Techniques, edited by V. Silberschmidt, Elsevier, London. https://doi.org/10.1016/B978-0-12-818232-1.
32. A. Roy, Q. Liu, U.S. Dixit, V.V. Silberschmidt, 2021, Simulations of machining processes at small spatio-temporal scales, in Mechanical Sciences: The Way Forward, Edited by U.S. Dixit and S.K. Dwivedy, Springer, Singapore, pp. 241-254.
33. A. Raj, A. Ch. Borsaikia and U.S. Dixit, 2020, Manufacturing of Autoclaved Aerated Concrete (AAC): Present Status and Future Trends, in Advances in Simulation, Product Design and Development, edited by M.S. Shunmugam and M. Kanthababu, Springer, Singapore.
34. F. Chen, J. Zhang, M. Wu, X. Chu and Uday Shanker Dixit, 2020, Design of open battery pack interface for electric vehicle personalization, in Advances in Simulation, Product Design and Development, edited by M.S. Shunmugam and M. Kanthababu, Springer, Singapore.
35. Praveen Kumar Bannaravuri, Anil Kumar Birru, and Uday S. Dixit, 2020, Surface modification of Al–4.5%Cu/MoS2 composites by laser surface melting, in Manufacturing Engineering, V. S. Sharma et al. (eds.), Springer, Singapore.
36. N. Bhardwaj, R. Ganesh Narayanan, and Uday S. Dixit, 2020, Effect of lubrication on energy requirement and joint properties during FSSW of AA5052-H32 aluminium alloy, in Manufacturing Engineering, V. S. Sharma et al. (eds.), Springer, Singapore.
37. A. Raj, A. Ch. Borsaikia and U.S. Dixit, 2020, Finite element modeling of autoclave aerated concrete (AAC) masonry for estimation of strength, in Manufacturing Engineering, V. S. Sharma et al. (eds.), Springer, Singapore.
38. Arpit Tripathi, R. Ganesh Narayanan, and Uday S. Dixit, 2020, Implementation of Yield Criteria in ABAQUS for Simulations of Deep Drawing: A Review and Preliminary Results, in Manufacturing Engineering, V. S. Sharma et al. (eds.), Springer, Singapore.
39. N. Bhardwaj, R. Ganesh Narayanan, and Uday S. Dixit, 2021, Modelling of friction stir welding processes, in Welding Technology, edited by J. Paulo Davim, Springer, Switzerland.
40. F. Sharma and U.S. Dixit, 2021, Sustainability Analysis of Fused Deposition Modelling Process, in Fused Deposition Modeling Based 3D Printing, edited by H.K. Dave and J. Paulo Davim, Springer, Switzerland.
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Editorials

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11. U.S. Dixit and T. Ozel, 2018, Special issue on "Advances in Laser-Based Manufacturing", Int. J. Mechatronics and Manufacturing Systems, Vol. 11, Nos. 2-3, pp. 99-100.

Book Review

1. U.S. Dixit, 2012, Book Review: Hybrid Modeling and Optimization of Manufacturing: Combining Artificial Intelligence and Finite Element Method, International Journal of Manufacturing, Materials, and Mechanical Engineering, Vol. 2(4), pp. 71-72.

Technical Reports:

- P.M. Dixit, U.S. Dixit and Abhijat Vatsyayan, *Stress and Vibration Analysis of KADECS(Kaveri Digital Engine Control System)Vapour core Pump,* 1996, A project sponsored by HAL, Lucknow to IIT Kanpur.
- P.M. Dixit, N.N. Kishore, V. Sundararajan, R. Patanaik, S. N. Vardhan, M. S. Kulkarni and U. S. Dixit, *Analysis of Bird Impact with the Wind-screen of the Light Combat Aircraft,* 1998, A project sponsored by ADA, Bangalore to IIT Kanpur.
- A.D. Sahasrabudhe, A. K. Gogoi and U. S. Dixit, 2001, Development of an advanced mechatronics laboratory, A project sponsored by MHRD, New Delhi.
- U.S. Dixit and A.D. Sahsrabudhe, 2002, Prediction of job quality and tool condition in turning by measurement of cutting forces and vibrations, A project sponsored by DST, New Delhi.
- K. Ramachandran, A.D. Sahasrabudhe, U. S. Dixit, A. K. Das, S. Nadkarni, R. Kalaga, 2003, "Redesign of mobile road maintenance system", A project sponsored by Eastern Base Workshop (EBW), Border Roads Organization, Tezpur.

- U. S. Dixit and S. K. Kakoty, 2003, Design of a mechatronic wheelchair with modular features, A project sponsored by District Rehabilitation Center Scheme, Ministry of Social Justice and Empowerment, Govt. of India.
- P. Mahanta, U.S. Dixit, U.K. Saha, P. Kalita and L. Barbora, 2006, Development of an energy efficient machine for areca nut leaf plate manufacturing, report submitted by Center of Energy, IITG to Dhritti-The Courage Within, New Delhi.

Course Material:

(1) Course material for IGNOU on Mechatronics, Quality Engineering and Metrology
(2) A web-based and video course on Engineering Mechanics (part of NPTEL project)
(3) QIP lecture note on Finite Element Method in Engineering.
(4) Lecture notes on "Applications of finite element method in manufacturing" edited by S.K. Dwivedy and U.S. Dixit, Dept. of Mechanical Engineering, IIT Guwahati.
(5) Lecture notes on "Introduction to Micro-manufacturing Technologies" edited by S. Deb and U. S. Dixit, Dept. of Mechanical Engineering, IIT Guwahati.
(6) MOOC course on Mechanics of Machining, 2018.

Patents

1. **AUTOCLAVED AERATED CONCRETE(AAC) BLOCK UNIT COMPRISING IN-BUILT ANCHORAGE/FROG ON SURFACE FOR ENHANCEMENT OF BONDING AND LATERAL/SHEAR STRENGTH IN MASONRY WALL SYSTEM**, Patent 201831028883 **Patent Office Journal No. 36/2018 Dated 07/09/2018**. Inventors: U.S. Dixit, A.Ch. Borsaikia, A. Raj

2. RIDER OPERATABLE AND RETRACTABLE STABLIZER WHEELS SYSTEM IN BICYCLE, Patent: 201941018075 A, **Patent Office Journal No. 23/2019 Dated 07/06/2019,** Inventors: HARISH PANDURANGA JEEVAJI, U.S. Dixit, Amit Raj and Shashikant Soren

Product development

Developed a heat based sanitizer to disinfect pathogens. It was covered in media reports on 27th May 2020.

Mentorship of startups

1. Mentoring of Beta Tank Robotics Pvt. Ltd. for developing oil tank cleaning system

2. Mentoring of Alvvin Engineering Pvt. Ltd. for developing stirling engine

Annexure-IV

Sponsored Projects/Consultancy

S. No.	Title	Funding Agency	Amounts	Duration	Co-workers
1.	Development of an Advanced Mechatronics Laboratory	MHRD	Rs. 7 lakh	April 1999-March 2001	Prof. A. D. Sahasrabudhe (PI), Dr. A. K. Gogoi
2.	Short term course for the skill up-gradation of machinist and turners	T & I Limited, Tezpur	Rs.17143	One week June 1999	
3.	Prediction of job quality and tool-	DST	Rs. 1200000 approx.	June 2000-September	Prof. A. D. Sahasrabudhe

	condition in turning process by measurement of cutting forces and vibrations			2002	
4.	Development of an adaptive P-refinement scheme for Finite Element Analysis	ADA, Bangalore	Rs. 828200	July 2001-June 2003	Dr. S. K. Dwivedy
5.	Design of Mechatronic wheelchair with modular features	Ministry of Social Justice and Empowerment	Rs. 425000	June 2002-December 2003	Dr. S. K. Kakoti
6.	Redesign of Mobile Road Maintenance System	Border Roads Organization	Rs. 660000	August 2002-till date	Prof. R. K. Ramachandran (PI), Prof. A. D. Sahasrabudhe, Prof. S. Nadakarni, Dr. R. Kalaga, Mr. A. K. Das
7.	Design of five-speed automated manual transmission for a mid sized car	MHRD, New Delhi	Rs. 700000	May 2003	Dr. S. K. Kakoty (PI), Mr. A. K. Das
8.	Short-term course on "Project Management"	NEEPCO, Shillong	Rs. 18360/-	27-28 Feb. 2004	Dr. A. D. Sahasrabudhe, Dr. S. Talukdar
9.	Short-term course on "Project Management"	NEEPCO, Shillong	Rs. 20000/-	5-6 Nov. 2004	Dr. A. D. Sahasrabudhe, Dr. S. Talukdar
10.	Technology upgradation of brass metal cluster at Hajo	SBI Guwahati	3,50,000/-	2003-2006	Dr. P.S. Robi (PI)
11.	Development of an energy efficient machine for Arecanut leaf plate manufacturing	Dhriiti-The courage within, New Delhi	Rs. 2,50,399/-	June 2005-	Dr. P. Mahanta, Dr. U. Saha, Mr. P. Kalita, Ms. L. Barbora
12.	Short term course for brass metal workers	Small Scale Industries Service Institute	Rs. 30000/-	5-6, April 2005	Dr. Robi and Dr. Kakoti
13.	Evaluation of tensile properties of Zircaloy-4	AERB	Rs. 11,00,000/-	2008	Dr. R.G. Narayanan (PI)
14.	Establishing an Institute of Excellence (IOE) for Advanced Studies, Training and Research in Mechanical Engineering	AICTE	Rs. 25,00,000	April 2009-March 2012	Dr. A.K. Dass, Dr. K.M. Pandey, NIT Silchar, Dr. S. Ray, NERIST, Itanagar
15.	Time and motion study for unloading of FCI rakes at Changsari	M/s Saikia Trade & Transport Co.	Rs. 60000/-	May 2010	

		Guwahati			
16.	Strengthening the research activities in the area of micro-fabrication	DST-FIST	Rs. 259, 50,000/-	January 2009	In the name of Head
17.	Modelling of advanced materials for simulation of transformative manufacturing processes	DST	Rs. 20,93,600/- (IIT Guwahati Budget), total: Rs. 2,17,50,800/-	September 2014 to March 2018	Dr. P.M. Pandey, Dr. Suneel Jha, IITD, Dr. Satyam Suwas, IISC Bangalore
18.	Estimation of temperature distribution in welding	DRDL, Hyderabad	Rs. 9, 70,000/-	January 2015-January 2020	Dr. Pankaj Biswas
19.	Design and Development of Proper Bonding Mechanism for individual AAC block units in wall system of a structure	DST	Rs. 40,98,352/-	May 2016-July 2019	Dr. Arun Borsakia
20.	Experimental and numerical research on contact friction in the process of plastic deformation by means of compression with torsion (Indo-Russian Project)	DST	Rs. 26,29,152/-	February 2020-Januray 2022	Dr. Pavel A. Petrov, Moscow, Russia
21	Technology Innovation Hub on "Technologies for underwater exploration"	DST	About Rs. 135,000,00,00	April 2020 to March 2025	In a big team of IITG
22	Technology Innovation Hub on "System simulation, modelling and visualization"	DST	About Rs. 100,000,00,00	July 2020 to June 2025	As an advisor for IIT Indore
23	Design and development of an intelligent extrusion device for 3D printing of concrete structures	DST	Rs. 43,44,222	February 2021 to February 2024	Dr. B. Panda (PI), Dr. A. Borsaikia

As Project Engineer:

1. *Stress and Vibration Analysis of KADECS(Kaveri Digital Engine Control System) Vapour core Pump,* 1996, A project sponsored by HAL, Lucknow to IIT Kanpur.
2. *Analysis of Bird Impact with the Wind-screen of the Light Combat Aircraft,* 1998, A project sponsored by ADA, Bangalore to IIT Kanpur

Annexure-V

Short term courses/invited talks and visits/courses and conferences organized

1. Conducted short term course for the skill up gradation of machinists and turners of T&I limited Tezpur.
   Duration: one week. From 28.06.99 to 03.07.99
   Amount: Rs. 17,143.00
2. Visited Aeronautical Development Agency Bangalore on the invitation of Air Frame Division of ADA in May 1999. Spent one week and helped them in doing Finite Element Analysis of wind-screen of LCA.
3. Visited TRDDC Pune in December 2000 for a duration of two weeks and taught the TRDDC team (related to continuous casting) about "Fuzzy Logic Applications in Finite Element Analysis**"**. TRDDC team working on stress modeling of continuous casting wrote a paper related to fuzzy set application in stress modeling. They are now interested to sponsor an M. Tech. Project at IIT Guwahati.
4. Participated as an expert in short-term course on "Intensive course on bulk metal forming processes" organized at IT, BHU from 14-5-01 to 25-5-01.
5. Delivered invited talk in short term course on CAD, CAM & Robotics organized by AEI, Guwahati in November 2001.
6. Invited talk on "fuzzy sets" at Assam State center of Institution of Engineers (I), in February 2002.
7. Expert lecture in short term training on renewable energy applications in north east region held at IIT Guwahati (Oct 21-26, 2002)
8. Expert lectures in short term course on concurrent engineering held in NERIST, Itanagar (2-13 Dec 2002)
9. Expert lecture on Experimental Techniques for Whole Field Stress Analysis, Dept. of Mech. Engg., NERIST, Itanagar (October27-31, 2003)
10. Expert lecture on "Fuzzy sets and its applications in Mechanical Engineering", in Refresher Course Mathematics (IX), from 02 to 22 December 2003, UGC academic staff college, Gauhati University, Guwahati.
11. Expert lecture on "Fuzzy and neural network applications in product design and manufacturing", on 27th December 2003 at a 2-week short term course on "Rapid design and manufacturing" at IT BHU.
12. Expert lecture on "Error analysis and refinement in FEM" on 9-10 March 2004 at 2 week QIP short term course on "Computational methods for differential equations" Dept. Mathematics, IIT Guwahati.
13. Expert lectures on "Neural networks and pattern recognition" in QIP short term course on "Optoelectronics", July 5-10, 2004, IIT Guwahati.
14. Expert Lectures in ISTE sponsored short term course "FEA & Identification in rotor-bearing systems", December 20-24, 2004, IIT Guwahati.
15. Expert lectures on Operations Research in AICTE sponsored short term course at NERIM, Guwahati on 22-6-05.
16. Expert lectures on FEM in QIP sponsored short term course on computer-aided design and manufacturing, on 13-12-2005 at IIT Guwahati.
17. Expert lectures on FEM in ISTE sponsored short term course on Finite Element Analysis & Signal Processing in Rotating Machineries, on 19th and 20th December 2005 at IIT Guwahati.
18. Expert lecture on Mechatronics and Concurrent Engineering in QIP sponsored course on Rapid prototyping, 12 December 2006.
19. Invited talk on Emerging trends on CAD & Animation in Today's world in CADD Center Training Services, Guwahati on 20-11-2007.
20. Lecture in QIP course "Theory, numerics and application of differential equations" on 14th December 2007. Course was organized by Mathematics Department. I gave a talk on applications to metal forming area.
21. Invited talk on NEIST, Jorhat on "Design Procedures in 21st Century" on 18th February 2008.
22. Invited talk at NIT Silchar on 17th May 2008 on "Modelling of Metal Forming Process".
23. Lectures in AICTE-MHRD sponsored course "Fluid Dynamics and its Applications" on 10-11 July 2008.

24. Seminar on Asymmetric Rolling at Department of Mechanical Engineering, IIT Kanpur on 13 April 2009.
25. Lectures on FEM, neural network and laser applications in manufacturing on 12th and 14th December 2009 in NERIST Itanagar
26. Lectures in short term course on soft computing applications in engineering at NERIST, Itanagar, January 2010.
27. Keynote address on "FEM and Soft Computing in Manufacturing" at CPIE2010, NIT Jalandhar on 3-5 December 2010.
28. Keynote address on "FEM and Soft Computing in Manufacturing" at National Conference on Advanced Design and Manufacture, at Einstein College of Engineering, Tirunelveli, India, 6-7 January 2011.
29. Expert lecture on "Micro-extrusion" in Short Term Course on Micromanufacturing at IIT Kanpur on 1st October 2011.
30. Expert lecture on "Engineering Mechanics" at NPTEL workshop, November 4, 2011.
31. Expert lecture on "Cloud Computing" at NERIST, Itanagar, June 2012.
32. Expert lecture on "Soft Computing" at NIT Silchar, August 2012.
33. Lecture on "Basics of FEM" at NIT Silchar on 4th November 2012.
34. Keynote address on "Microforming using Laser" 3rd International Conference on Production and Industrial Engineering, CPIE-2013, March 29-31, 2013, NIT Jalandhar
35. Lecture on "Evolution of Engineering Sciences" on 24th December 2013 at DST-INSPIRE at Tezpur University
36. Expert lectures on Application of soft computing and FEM to welding at NIT Agartala on 30-31 January, 2014.
37. Expert lecture in Computational Modeling and Analysis using ANSYS and Creo (CoMAAC), June 3-7, 2015.
38. Expert lecture on "Laser based microforming" in a short term course (August 31- September 4, 2015) at IIT Kanpur on August 31, 2015.
39. Expert Lecture on Gear Manufacturing in TEQUIP course on Gear Engineering, November 21-22, 2015.
40. Expert Lecture on practical tips for FEM in TEQUIP course on Practical Aspects of FEM, January 25-29, 2016.
41. Expert lecture on Challenges in the Modelling of Metal Forming Processes, in Pravartana, 2016, February 12-14, 2016 at IIT Kanpur.
42. Expert lecture on microforming in a UGC sponsored workshop on "Micromanufacturing" at Jadavpur University from 17-19 March, 2016.
43. Expert lecture on "National workshop on Laser Material Processing Technology (NWLMPT-2016)" held at Jadavpur University on 27th August 2016.
44. Expert lecture on "Autofrettage Processes" in NIT Jalandhar on 5th October 2016.
45. Keynote address on "Issues and Challenges in the Modeling of Metal Forming Processes" in National Conference on Advances in Research and Innovations in Mechanical Engineering, Material Science, Industrial Engineering and Management, NIT Manipur, 12-13 December, 2016.
46. Keynote address on "Issues and Challenges in the Modeling of Metal Forming Processes" in IVth International Conference on Production and Industrial Engineering (CPIE-2016), December 19-21, Dr. B.R. Ambedkar National Institute of Technology, Jalandhar, India.
47. Two hours lecture on Friction at GIMT Guwahati in a winter school on Engineering Mechanics on 2nd March 2017.
48. Key note address on Achieving the goal of sustainability through modeling of manufacturing processes, in the National Conference on Sustainable Mechanical Engineering: Today and Beyond (SMETB), March 25-26, 2017, Tezpur University.
49. Expert lectures on FEM from 11-13 May 2017 at a short term course of Electronics and ICT Academy, PDPM IIITDM Jabalpur. Was also Guest of Honor in the inaugural function.
50. Interaction with M.Tech. students, at NIT Jalandhar on May 23, 2017.
51. Expert lectures on Modelling of Metal Forming and Machining at NIT Jalandhar from July 17 to July 22, 2017.
52. A talk on laser forming and surface alloying at IGNIS 2017 at Royal Global University on October, 30, 2017.

53. Keynote address in National Conference ASSET 2018 at CIT, Kokrajhar on March 11, 2018. Also chaired a technical session.
54. Lectures as a part of TEQUIP at Institute of Engineering and Technology, Dibrugarh University, March 27, 2018.
55. Expert lecture on laser forming and coating in a National Seminar on Advanced Research in Mechanical Engineering (NSARME-2018), April 4-5, 2018 at NIT Manipur.
56. Lectures on elasticity as a part of TEQUIP at Institute of Engineering and Technology, Dibrugarh University, May 24, 2018.
57. Comprehensive examiner of a Ph.D. student at NIT Jalandhar on March 28, 2018.
58. Chief guest and keynote speaker at International Conference on Advances and Soft Computing Applications in Design and Manufacturing, 4-6 June, 2018 at NIT Patna.
59. Plenary talk on Modelling of Manufacturing Processes: A Historical Perspective, at CPIE 2018 in Bangkok on June 27, 2018.
60. Expert lecture on "Lasers Based Manufacturing" at NERIST Nirjuli on September 17, 2018.
61. Interaction sessions with students of IIT (BHU) on October 8-9, 2018.
62. Expert Lecture on "How Can We Use Soft Computing in Design and Manufacturing?" at Shantou University, China on October 16, 2018.
63. Lectures in Course on Sustainable Machining Processes, from 22-26 October, 2018.
64. Addressed students as a Guest of Honor in the annual technical festival of NIT Agartala on November 2, 2018 (Aayam 6.0)
65. A talk on copyright issues and effective technical writing to Ph.D. students of Mechanical Engineering, BITS Pilani, Hyderabad campus on November 20, 2018.
66. A talk related to pedagogy in TEQIP course "Energy efficient and green energy technologies" on November 28, 2018 at IIT Guwahati.
67. A talk related to FEM for modelling vibration in TEQIP course "Vibration and Noise Analysis of Mechanical Systems" on December 6, 2018 at IIT Guwahati.
68. Talks on FEM and technical writing at PDPMIITDM Jabalpur on January 31, 2019.
69. Motivational talk to students of Transition Academy, Damdama, Seas, Assam on February, 22, 2019.
70. Invited talk on Evolution of Mechanical Engineering at ICCMM2019, March 8, 2019, IIT Guwahati.
71. Visited NIT Andhra on 10th March 2019 for discussing the syllabus of M.Tech. (Manufacturing Technology and Engineering).
72. Invited talk in research conclave IIT Guwahati on "Evolutions of Mechanical Engineering" on March 16, 2019.
73. Keynote lecture on Sustainable Manufacturing in a one-day workshop at IIT Ropar (sponsored by ARDB) on 19th March 2019. Also delivered a talk on 18th March 2019 on History of Mechanical Engineering.
74. Speaker at TEQIP workshop on writing project proposal, Place: Jorhat Engineering College, Date: May 7, 2019.
75. M.Tech. viva at IIT (ISM) on May 9, 2019.
76. A pedagogy lecture in TEQIP course on Recent Trends in Renewable Energy Utilization Technologies, May 8-12, 2019, IIT Guwahati.
77. Chief guest and resources person in a TEQIP course related to modelling of manufacturing processes organized at NIT Jamshedpur during May 20-24, 2019.
78. Lecture on art of teaching at TEQIP-III sponsored two-week FDP on Research Methodology and Pedagogy in Teaching Learning on 30-5-2019 at Assam Engineering College, Guwahati.
79. B.Tech./M.Tech. viva at Tezpur University on June 7, 2019.
80. Keynote lecture on some research problems of manufacturing at 6th International Conference on Production & Industrial Engineering (CPIE 2019), June 8-10, Dr B R Ambedkar National Institute of Technology Jalandhar. Also chaired a session.
81. Lecture on art of teaching at TEQIP course on "Clean Energy Technologies" at Center for Energy, IIT Guwahati on June 12, 2019.
82. Lecture on Role of educational toys, models and simulation tools in learning at a TEQIP-MHRD course on Advanced pedagogy on June 24, 2019 and July 3, 2019.Also, conducted sessions on additive manufacturing along with Dr. S. Kanagaraj and Dr. S. Kapil.

83. Lecture on "Art of Teaching" in a short term course "Robotics and Automation" held at IIT Guwahati from March 3 to March 13, 2020.
84. Online lecture on "Advanced Manufacturing: Research Opportunities" and "Applications of Lasers in Forming and Surface Engineering" in a FDP "Research Opportunities in Advanced Manufacturing Processes" at Bharati Vidyapeeth University, College of Engineering, Pune from June 22, 2020 to June 28, 2020.
85. Online lecture on in a Webinar on "Technical Education in Post Covid Era: NE Perspective" organized by NIT Agartala on June 24, 2020.
86. Online lecture on hybrid metal working processes in a short-term course on "Hybrid Manufacturing Processes: Opportunities and Challenges" organized by NIT Jalandhar on July 8, 2020.
87. Online lecture on Industry 4.0 in an e-short-term-course on "Industry 4.0 and Smart Manufacturing: Opportunities and Challenges", Organized by NIT Jalandhar from July 20 to July 24, 2020.
88. Online lecture on cost estimation of modern manufacturing processes in an e-short-term-course on "Industry 4.0 and Smart Manufacturing: Opportunities and Challenges", Organized by NIT Jalandhar from July 20 to July 24, 2020.
89. Keynote lecture on challenges in the modelling of metal forming in International Conference on Modeling, Simulation and Optimization 2020, National Institute of Technology Silchar, 03-05 August 2020.
90. Talk in the Webinar National **Education Policy 2020: Impact on Technical Education,** organized by NIT Agartala, August 14, 2020.
91. Lecture in a robotics training program of ASTU on mechanical, hydraulic, pneumatic, electronics items, August 21, 2020.
92. Keynote lecture on modelling of laser based manufacturing in National Online Conference on "Research and Developments in Material Processing, Modelling and Characterization 2020" (RDMPMC 2020) organized by Department of Metallurgical and Materials Engineering in association with the Department of Production and Industrial Engineering, National Institute of Technology Jamshedpur, August 26-27, 2020.
93. Panelist in the panel "Role of Industry & Private Sector" in webinar "Science & Technology Research-Policy-Practice Interface for Climate Risk Management, Organized by National Institute of Disaster Management and Department of Science and Technology, New Delhi, August 25-27, 2020.
94. Lectures on FEM in QIP-STC (online-mode) on Differential Equations: Solution Techniques and Applications, 10-11 September 2020, IIT Guwahati.
95. Lecture on Ductile Fracture TEQIP-III sponsored one-week online Short-Term Course on 'Computational and Experimental Studies on Failure of Materials' held during September 13-17, 2020, at NIT Jalandhar.
96. Four lectures in FDP on "Finite Element Methods and Applications", organized by Department of Mechanical Engineering, Rajasthan Technical University, Kota, September 16–20, 2020.
97. Lecture on Simulation and Modelling of Manufacturing Processes in webinar 'Advanced and Futuristic Manufacturing Process' organized by NIFFT, Ranchi, September 25-29, 2020.
98. Lecture on "Pedagogy of FEM" in short term course "Finite Element Methods: Variational Methods to Computer Application" on November 6, 2020, organized by Department of Mechanical Engineering, IIT Guwahati.
99. Lecture on "Art of teaching to technical students" in the short term course "Robotics for 3D Printing" on December 1, 2020, organized by Department of Mechanical Engineering, IIT Guwahati.
100. Lecture on Micro-Forming Processes in the TEQIP course on Micro-manufacturing organized by Department of Mechanical Engineering, IIT Guwahati. Lecture date: 03-12-2020.
101. Two lectures on FEM and one on pedagogy in TEQIP course on Analytical Mechanics and its Applications, IIT Guwahati, December 14-18, 2020.
102. Lecture on Laser Forming and Surface Engineering in STC on Advanced Manufacturing and Materials, (online) organized at IIT Indore, 20-12-2020.
103. Lecture on pedagogy in TEQIP course on Structural Vibration Control IIT Guwahati, December 23, 2020.

104. Lecture on "Impact of Machine Learning in Manufacturing Sector" in FDP on **Machine Learning Applications in Mechanical Engineering (MLAME)** under the banner of Electronics and ICT Academy, NIT Patna, sponsored by Meity, Govt. of India during December 21-26, 2020.
105. Lecture on "Autoclaved Aerated Concrete: A Sustainable Building Material" in a short term training programme under TEQIP-III, entitled "**Recent Advances in Construction Materials and Building Technologies",** organized at IIT Guwahati, December 26-31, 2020.
106. Lecture on "Technical Teaching" in One Week online "**AICTE-ISTE INDUCTION/REFRESHER PROGRAM"** on "**Outcome Based Pedagogic principle for teaching-learning in Engineering Education**", organized by Nowgong Polytechnic, January, 6-12, 2021.
107. Inaugural lecture on Lasers-based manufacturing in Laser Matter Interaction course, 18-23 Jan 2021, at IIT Kanpur.
108. Lecture on Art of Teaching in FDP on Experimental and Computational Methods in Fluid Flow and Heat Transfer in Engineering Application, organized online by NIT Manipur on 15-2-21.
109. Lecture on National Education Policy 2020 (online) at NIT Meghalaya on 17-2-21.
110. Lecture on "Teaching of Green Engineering" in a STC "Recent Advances in Manufacturing Science and Technologies", Department of Mechanical Engineering, IIT Guwahati, February 22. 2021.
111. Lecture on "History of Mechanics" in online STC on "Engineering Dynamics", on 27-2-21, IIT Guwahati.
112. Lecture on "Pedagogy for solid mechanics" in the TEQIP STC on "Fracture Mechanics and its Applications in Laminated Composites (Online mode)" on March 3, 2021, IIT Guwahati.
113. Lecture on "Solving dynamics problem through FEM" in online STC on "Engineering Dynamics", on 28-2-21, IIT Guwahati.
114. Lecture on "Solving dynamics problem through FEM" in online STC on "Engineering Dynamics", on 7-3-21, IIT Guwahati.
115. Online lecture on "**Introduction to Numerical Techniques in Mechanical Engineering"** in 5-day webinar on "Numerical Methods in Mechanical Engineering Applications" organized by NIT Manipur on 17-3-2021.
116. Lecture on Mechatronics Education on online FDP on "Model Curriculum" at NIT MIZORAM on 19th March 2021.
117. Keynote lecture on "Evolution of Mechanical Engineering" in National Conference on Engineering, Science, Technology and Management (NCESTM) 2021 organized by Indira Gandhi Institute of Technology (IGIT), Sarang, Odisha, on March 27-28, 2021.
118. Presented a talk on Sterilization Box at IIT Guwahati on Technology Day, May 11, 2021.
119. Keynote lecture on Modelling and Simulation of Manufacturing Processes, 2nd International Conference on **Recent Advances in Manufacturing (RAM-2021)** on 10th June, 2021, at SVNIT, Surat, India.
120. Inaugural lecture on "**Estimation of parameters in laser-based materials processing through inverse modelling"** in short term course "LASER based Manufacturing and Precision Engineering" held at IIT Indore. Lecture date: June 14, 2021.
121. Inaugural lecture on "Additive Manufacturing: Past, Present and Future" in Advances in Metal and Multimaterial 3D Printing', ATAL course, 16-20 July 2021, at IIT Kanpur.
122. A talk on Vedantu in "Technothlon, IIT Guwahati" on the invitation of Techniche IIT Guwhati on 3rd August 2021.
123. Keynote Talk in the Department of Mechanical Engineering, National Institute of Technology Patna in online International Conference on "Progressive Research in Industrial & Mechanical Engineering (PRIME - 2021)" from 5th to 7th August 2021. The talk was on "Machine Learning in Machining and Metal Forming" on August 6, 2021.
124. Invited lecture on "Sustainability issues in 3D Printing" in International Symposium on 3D Printing Technology towards Industry 4.0 (IS3DPT4.0 - 2021), held on 12-13 August 12, 2021, Institute of Engineering & Management, Kolkata.
125. Lecture on "Past, present and future of 3D Printing" in a **one-week** online Faculty Development program on **"Additive Manufacturing from 3D Printing to the Factory Floor"** on August 26, 2021 at NIT Srinagar.

126. Lecture on “Indian Knowledge Systems” in ATAL STC on “Predictive Modelling” by Mathematics Department, IIT Guwahati on 9-9-21.
127. Lecture on Hindi Diwas at Assam Science and Technology University, Guwahati on 14-09-2021.
128. Lecture on Hindi Diwas at NIT Manipur on 14-09-2021.
129. Lecture on the importance of Hindi at SAMEER, IIT Guwahati on 21-09-2021.
130. Lecture on Environmentally Friendly Machining in a 5 Day online ATAL Academy sponsored Faculty Development Program on "Green Technology: Applications in Manufacturing” to be organized from 20th-24th September 2021at NIT Patna.
131. Talk (online) at NIT Silchar on NEP2020, November 27, 2021.
132. Delivered an online lecture entitled “Research Publications: Facilitator and Indicator of Research” in a STC “TAPAS - Purposeful Research Methodology (PRM)” organized by Research for Resurgence Foundation (RFRF) Nagpur and E&ICT Academy IIT Guwahati, December 19, 2021.
133. Keynote lecture in AICTE-ISTE INDUCTION/REFRESHER PROGRAM” on “Issues and Challenges in Teaching Learning of Engineering Mechanics and Drawing” organized by Nowgong Polytechnic, Nagaon on 21/12/2021.
134. Lecture on “Concept of friction” in AICTE-ISTE INDUCTION/REFRESHER PROGRAM” on “Issues and Challenges in Teaching Learning of Engineering Mechanics and Drawing” organized by Nowgong Polytechnic, Nagaon on 23/12/2021.
135. Lecture on “Techniques of teaching mechanics through experiments” in AICTE-ISTE INDUCTION/REFRESHER PROGRAM” on “Issues and Challenges in Teaching Learning of Engineering Mechanics and Drawing” organized by Nowgong Polytechnic, Nagaon on 27/12/2021.
136.

Courses organized

1. QIP sponsored Short-term course on “Application of Finite Element Method in Manufacturing”, Feb. 16-20, 2004 at IIT Guwahati, Other coordinator: Dr. S.K. Dwivedy.
2. QIP sponsored Short-term course on “Introduction to Micro-Manufacturing Technologies”, Feb. 16-20, 2008 at IIT Guwahati, Other coordinator: Dr. S. Deb.
3. AICTE sponsored short-term course on “Mechanical Engineering Education”, December7-11, 2009. Other coordinator: Dr. A.K. Dass
4. QIP sponsored short term course on “Applications of Lasers in Manufacturing” , June 24–28, 2013. Other coordinator: Dr. M. Ravi Sankar
5. QIP sponsored short term course on “Micro-Manufacturing Technologies”, March 23–27, 2015. Other coordinator: Dr. S. N. Joshi
6. GIAN course on “Crystal Plasticity Modelling of Micro-Machining Processes”, December 11-15, 2017. Guest expert: Dr. Anish Roy
7. Level 1 course of IWS for welders of North East India, October 3 to October 14, 2018. Co-organizer: Dr. R. Ganesh Narayanan
8. TEQIP course on Sustainable Machining Processes, October 22-26, 2018, Co-organizer: Dr. M. Ravisankar.
9. GIAN course on “Isothermal Near-Net Shape Forging of Aluminum Alloys: Advances and Inventions”, July 8-12, 2019. Guest expert: Dr. Pavel A. Petrov
10. A half day course on Technical Writing by Springer on August 24, 2019.
11. Faculty coordinator for a 3-week training program on Robotics Fundamentals organized by RBPL and E&ICT Academy, IIT Guwahati, for ASTU students starting from August 10, 2020.
12. TEQIP course on Analytical Mechanics and its Applications, December 14-18, 2020, IIT Guwahati. Co-organizer: Dr. S.K. Dwivedy
13. TEQIP course on “Fundamentals and Applications of Engineering Dynamics”, February 27-28th, 2021 and March 5-7th, 2021, IIT Guwahati. Co-organizer: Dr. B.N. Panda
14. A 10-day course on “Spoken Assamese”, December 10-19, 2021, IIT Guwahati. Co-organizer: Dr. S. Sharma.

Conferences organized

1. International Conference on Computational Methods in Manufacturing, 15-16 December, 2011 at IIT Guwahati. (As Organizing Secretary)
2. National Conference on Advances in Welding Technology, 10-11 May 2013, NERIST, Nirjuli, Arunachal Pradesh. (As Chairman of Organizing Committee)
3. National Conference on Manufacturing: Vision for Future, 12-13 October, 2013 at IIT Guwahati (As Organizing Secretary)
4. 5th International and 26th All India Manufacturing Technology, Design and Research (AIMTDR) conference, 12-14 December, 2014, IIT Guwahati (As Organizing Secretary)
5. 12th International Conference on Vibration Problems (ICOVP-2015), 14-17 December, IIT Guwahati (As member organizing committee)
6. 2nd International Conference on Computational Methods in Manufacturing (ICCMM2019), March 8-9, 2019, IIT Guwahati (As Executive Chairman)

Annexure-VI
Teaching experience

S. No.	Course Title	Level	No. of times taught	Remarks
1.	Design of Machine Elements	UG (third year)	1	
2.	Workshop Technology-II	UG (second year)	3	
3.	Finite Element Method in Engineering (	UG/PG	11	I prepared syllabus. Taught consecutively 6 times from 2007 to 2012.
4.	Mechatronics	UG/PG	4	I prepared syllabus.
5.	Manufacturing Science-II	UG (third year)	5	Recently taught in 2010
6.	Industrial Engineering and Operation Research	UG (third year)	6	Recently taught in summer of 2009 and 2013 to UG final year as ME 401
7.	Strength of materials	UG (second year)	2	
8.	Workshop Technology-I	UG (first year)	5	Latest 2020
9.	Optimization methods in engineering	UG/PG	8	In 2014, more than 175 students took the course, latest in 2018
10.	Continuum mechanics	UG	1	
11.	Mechanical Engineering Lab.	UG	1	Recently taught in 2009
12	Solid Mechanics	UG	1	I prepared syllabus.
13.	Advanced Solid Mechanics	UG	1	I prepared syllabus.
14.	Advanced Engineering Mathematics	PG	6	I prepared syllabus.

15.	Engineering Mechanics	UG	6	Recently taught in 2007, 2011 summer, 2012 summer, 2013 regular semester, 2014 as advisor
16.	Computer Integrated Manufacturing	PG	1	
17.	Physics of Manufacturing	PG	3	2015, 2016, 2017
18.	Numerical Analysis	PG	3	2015, 2016, 2017
19.	Continuum Mechanics	PG	2	2018 (one third), 2020
20.	Design of Mechatronic products	UG, PG	1	2019, I designed syllabus
21	Technical Writing	PG	1	2020, , I designed syllabus
22	Solid Mechanics I	UG	1	2020
23	Solid Mechanics II	UG	1	2021

Annexure-VII
Area of specialization

Ph. D. work:

Title: Cold Flat Rolling: Modeling with fuzzy parameters, anisotropic effects and residual stresses.

Supervisor: Prof. P. M. Dixit

Summary: In this work, a Finite Element Model for cold flat rolling is proposed, using mixed pressure and velocity formulation. To take into account the uncertainties in the process parameters, analysis has been carried out using fuzzy parameters. Based on the outcome of the analysis, a method to find out the reliability of a design is proposed.

In this work, normal anisotropy is accounted for. In the normal anisotropy, plastic properties vary along the thickness direction. For this purpose, a modified yield function is presented for solving the plane strain problems. A parametric study is carried out for hypothetical material parameters.

Various elasto-plastic formulations are tried in order to predict residual stresses. It is noted that there are many unsolved difficulties in getting a complete solution of elasto-plastic rolling problem with currently available elasto-plastic formulations. Hence, a simplified approach to find longitudinal residual stresses is presented. It provides a reasonable qualitative prediction.

Other work:

(1) Application of fuzzy set theory: I have applied fuzzy set theory in the scheduling of tandem rolling mill, metal cutting optimization and continuous casting.
(2) Application of neural networks to metal forming and metal cutting.
(3) Mechatronics: executed some projects in the area of mechatronics.
(4) Vibrations: Carried out shape optimization of flexible robotic manipulators and rotating beams.
(5) Micro Manufacturing: I am working on laser forming and micro-extrusion.

Annexure-VIII
Details regarding laboratory experience

(A) Setting of teaching and research laboratories:

I have set up two laboratories- Computer Aided Design (CAD) laboratory and Mechatronics. CAD laboratory has been set up from the institute fund and the Mechatronics from a MHRD sponsored project in thrust area. Now, Mechatronics laboratory is a full-fledged laboratory of the department and each year it will be getting some share of the department funds for up-gradation and maintenance.

CAD laboratory has got about 80 general purpose PCs and Linux and Windows NT server. Few more machines are being added to it. It has got solid modeling packages like I-DEAS, Solid Edge, analysis package like ANSYS and computer-aided-manufacturing packages like MASTER CAM. The initial objective of the laboratory was to fulfill the needs of courses in CAD-CAM and FEM, but now it has developed so much facilities that it is catering to the needs of all postgraduate students of the department as a departmental computer facility. The laboratory runs sixteen hours a day. Postgraduate students volunteer to supervisor the laboratory beyond office hours.

Mechatronics laboratory has got a hydraulic trainer, six microprocessor kits, two PLCs, two circuit development, stepper motors, DC motors, limit switches, proximity sensors, etc. It has got training kits on sensors and transducers, pneumatics and control system. It is used for conducting laboratory classes in the course on Mechatronics. It is also being used for some of B. Tech. and M. Tech. projects. A number of young and motivated students use it for giving expressions to their creativity, by making hobby projects and participating in student's technical festival.

I was also the faculty-in-charge of workshop. Recently, we procured Electro-chemical Machining unit and Laser Machine.

I was head of Department from March 2006 to March 2009. During this period, I developed a micro-manufacturing laboratory with the support of FIST scheme of Department Science and Technology. This work is still continuing under my supervision. An international conference on computational mechanics and simulations – ICCMS-06, was organized at IIT Guwahati, 2006 in my chairmanship.

(B) Conducting laboratory courses

I have conducted a number of laboratory courses. Many courses were run for the first time in our institute in my supervision. Earlier the students used to go to other neighboring institutes for doing experiments. I designed the type of jobs to be done by the students, ensured that raw material and appropriate tools are available, provided training to the staff so as they can impart their skills to the students.

In my personal opinion, the laboratory courses are highly neglected in our country. It is unfortunate to see the general tendency of leaving laboratory courses at the mercy of non-teaching staff or graduate students. The fact is that workshop course is at least as important as the course on FEM and requires full devotion of a faculty member to motivate the students. In the absence of faculty members, student community does not understand the importance of labs. Hence, I make it a practice to spend lot of time in the shop with the students to observe them, to motivate them and to help them correlate theory and practice. This practice also trains our staff members. The response of the students as well as staff people is enthusiastic. As Head of Department, I am taking utmost care to improve the quality of laboratory teaching.

I started a course on Mechatronics, which has two hours a week for theory and two hours a week for practical. I am teaching the course third time and continuously trying to improve my skills in both theory and practice. The response of the students is encouraging.

Annexure-IX
Industrial Experience

Industrial Experience

Period	*Organization*	*Title of Project and Nature of work*	*Designation*
February 1993 to July 1993	Indomag Steel Technology, New Delhi	Design of Pig Casting Machine, Design of hydraulic system of Continuous Casting Machine	Engineer

		Responsibility: Design and Procurement of items	
July 1987 to July 1991	HMT Limited, Pinjore	Design of Machining Centers and Broaching Machines Responsibility: Design, training of CNC customers	Dy. Engineer

Annexure-X
Administrative Experience

Period	Organization	Nature of work	Designation
April 24, 2021 till date	IIT Guwahati	Developing Indian Knowledge	Head of Center for Indian Knowledge Systems
February 2014 to May 2015	CIT Kokrajhar	Overall in-charge of academic and administrative activities, recruitment, representing the institute in BOG, finance committee and Society meetings	Officiating Director
April 1998 onwards	IIT Guwahati	Faculty-in-charge of CAD and Mechatronics laboratories and Workshop, Faculty advisor for UG students. Faculty-in-charge telephones, Faculty-in-Charge (Telephones), DUPC convener, Head of Department, Member of Intellectual Property Right Committee, Member of Institute Scholarship Committee, Member and convener of many purchase committees. M ember of Vidyalaya Management Committee, KV IITG, (2011-15), Member of DPGC of NERIST Itanagar , BOG member of School Board of School of Engineering & Technology, IGNOU (2013-14), Court member and executive committee of Assam Science and Technology University, Executive Council member for 4 years, up to 2018, Finance Committee member of ASTU since 2018, Member of post-doctoral fellowship committee , Executive Chairman Official Language Implementation Committee (for about 1 year, 2016-17), BOG member (IIT Council Nominee) of IIT Kanpur for 3 years since August 2018, Director's nominee to BOG of NIT Manipur from August 2018, Returning Office for General Election of IITG non-teaching employees' association (September 2019), IRDC member since November 2020. Shortlisting committee for HAG selection, February 2021, AICTE representative for "society for the NERIST" from 16-11-2021	Lecturer, Assistant Professor, Associate Professor, Professor, Professor HAG scale. **Head of Department (2006-2009)**
July 1987 to July 1991	HMT Limited, Pinjore	In-charge of Broaching Machine Design section	Dy. Engineer

Annexure XI
B.Tech Projects Guided

B.Tech. Projects Guided: 35 (completed)

(i) Title: Adaptive mesh generation for finite element analysis of a two dimensional heat transfer problem
Student: Mr. Sandeep Somani (1999)

(ii) Title: Adaptive mesh generation for solving two-dimensional steady-state heat conduction using finite elements.
Student: Mr. Nilabh Srivastava (1999)

(iii) Title: Platform independent automation of drilling machine
Students: Mr. Pankaj Arrawatia and Mr. Varunesh Puri (2000)
Co-Supervisor: Dr. A.D. Sahasrabudhe

(iv) Title: Optimization of turning process using a neuro-fuzzy controller
Students: Mr. Jitesh H. Panchal and Mr. Rohit Khanna (2000)

(v) Title: Design of photovoltaic air conditioning system for a room using fuzzy set theory
Students: Mr. Saurabh Akhauri and Mr. Himangshu Meel (2000)
Co-Supervisor: Dr. S.C.Mishra

(vi) Title: Finite Element Analysis of strip drawing
Student: Mr. S.Vikram (2000)

(vii) Title: Design and fabrication of a robot of industrial utlitiy
Students: Mr. Sai Kumar Banala and Mr. Prashant Dhanda (2001)
Co-Supervisor: Dr. S.K.Dwivedy

(viii) Title: Design of an intelligent air conditioning system using soft computing Approach
Student: Mr. Rishi Dev Singh (2001)
Co-Supervisor: Dr. S.C. Mishra

(ix) Title: Development of a two-finger mechanical gripper and study of the dynamics of a cylindrical robot
Student: Mr. R.Balyan (2001)
Co-Supervisor: Dr. S.K. Dwivedy

(x) Title: Conceptual Design of a Powered wheelchair
Student: Mr. Jay Dhariwal (2002)
Co-Supervisor: Dr. S. K. Kakoty

(xi) Title: Failure analysis of FRP laminated composite subjected to low velocity impact using finite element method (2002)
Students: Mr. Manish Khandelwal and Mr. Satish Gupta
Co-supervisor: Dr. D. Chakraborty

(xii) Title: A neural network based methodology for prediction of surface finish in turning process.
Students: Mr. Anoop Kohli (2003)

(xiii) Title: Fuzzy set based design and fabrication of the power module of a mechatronic wheelchair
Student: Mr. Parasar Kodati (2003)
Co-supervisor: Dr. H. Nemade

(xiv) Title: Design and fabrication of a myoelectric hand for below-elbow amputees
Student: Mr. Manvendra Tiwari (2004)
Co-supervisor: Dr. H. B. Nemade

(xv) Title: Design and fabrication of an automated manual transmission system
Students: Mr. Sudhesh Rajan and Mr. Vibhas Chandra Jha (2004)
Co-supervisor: Dr. S.K. Kakoty

(xvi) Title: Simulation and control of flexible robotic manipulator
Student: Mr. Om Prakash (2005)
Co-supervisor: Dr. S.K. Dwivedy

(xvii) Title: Mathematical modeling and numerical simulations of pulsating heat pipes
Student: M. Swetha (2006)
Co-supervisor: Dr. M. Pandey

(xviii) Title: Numerical analysis, shape optimization and experimental validation of flexible manipulator
Students: Kumar Kunal and Praveen Kumar (2006)

(xix) Title: Investigation of segregation in vertical centrifugal casting
Students: Deepak Kumar and M. Shadan (2007)
Co-supervisor: Dr. P.S. Robi

(xx) Title: Design and fabrication of a micro-extrusion machine (2007)
Students: Ravi Gupta, Kishore Aggarwal and Y. Yenu
Co-supervisor: Dr. S. Deb

(xxi) Title: A web-based system for the prediction of surface roughness in machining (2008)
Students: Aseem Bansal and Gaurav Kumar
Co-supervisor: Dr. S. Deb

(xxii) Title: Performance improvement of cross-flow cooling tower using perforated tray (2008)
Students: Bed Prakash Gupta and Kanda Shaurya
Co-supervisor: Dr. P. Mahanta

(xxiii) Title: Title: Capacitated lot-sizing and scheduling problem in production planning and control (2009)
Students: Hemanth Boyapati and V. Rohit

(xxiv) Title: Application of welding arc to obtain small angular bend in steel plates (2009)
Students: Ashish Khetan, Nishant Ranjan and Prathyusha.M
Co-supervisor: Dr. S.K. Kakoty

(xxv) Title: Design and fabrication of educational toys and models (2010)
Students: Naresh Nallamala and Suman Kumar
Co-supervisor: Dr. V. Kulkarni

(xxvi) Title: Design and Fabrication of Models of Metal Forming Processes (2011)
Student: Abhishek Khalko
Co-supervisor: Dr. S.N. Joshi

(xxvii) Title: Feasibility study of bending cast iron and welding of aluminium using CO_2 laser (2012)
Students: Jitendra Bansal and Navendu Shekhar

(xxviii) Title: Design and fabrication of simple spherical robot (2013)
Students: Nirbhay Sachan and Vasu Raj

(xxix) Title: Network design for transporting perishable edible commodities with the application of queuing theory (2013)
Students: Kartikeya Mohan Sahai and Siddharta Nambiar

(xxx) Title: Laser bending of mild steel with cooling of bottom surface by water (2014)
Students: Joss Daimari and Tusar Ranjan Deori

(xxxi) Title: Study on cutting of a ceramic material using CO_2 LASER (2014)
Students: Md. Idul Ahmed and Jyotishman Sarma

(xxxii) Title: Modelling and optimization of laser bending of a sheet (2014)
Students: Arijit Kumar Ray and Satish Kumar Sagar

(xxxiii) Title: Application of queuing theory in designing of a warehouse and solving the warehouse location problem (2015)
Students: Mayank Gupta and Vikas Singh

(xxxiv) Title: Temperature estimation in laser bending: A comparison of an analytical model with FEM (2015)
Students: Himanshu Gupta and Piyush Raj

(xxxv) Title: A study on ultrasonic assisted turning (2016)
Student: Vikas Godara

(xxxvi) Title: Simulation of stresses in high power GaN LED packages and its application in determining fuzzy reliability (2017)
Students: Bhupendra Singh Dhakad, Bindhya Raj Ankit
Co-supervisor: Dr. A. Chatterjee

(xxxvii) Title: Thermal analysis of advanced semiconductor devices (2017)
Students: Ankit Chamaria and Anurag Vij

(xxxviii) Title: stress analysis and design optimization of autoclaved aerated concrete (AAC) blocks (2018)
Students: A G Goutham, K Rajesh
Co-supervisor: Dr. A. Ch. Borsaikia

(xxxix) Title: Design of ultrasonic dental drill (2020)
Students: Deep Anand Basumatary and Dilip Saini

(xxxx) Title: Leveraging Product Analytics in E-commerce for elevating customer satisfaction (2021)
Students: Sabhareesh Muralidaran and Vaibhav Singh

(xxxxi) Title: Decision Support System For Purchasing a 3D Printer (2021)

Students: Nitesh Janghu, Amogh Singh Pathania

(xxxxii) Title: Selection of Optimum 3D Printing Technology using Machine Learning (2021)
Students: Shubham Salunke and Aakash Sharma

Annexure XI
Other Professional Activities

(1) Associate Editor of International Journal of Manufacturing, Materials, and Mechanical Engineering, published by IGI publishing.
(2) Editorial board member of Journal of Machining and Forming Technologies, Published by Nova Science Publishers.
(3) Editorial board member International Journal of Mechatronics and Manufacturing Systems published by Inderscience Publishers. (2012 to 2017)
(4) Co-guided a Master of Dental Surgery Project at Guwahati University tilted "Fracture Resistance of Teeth with Different Cavity Designs for Proximal Lesions with Different Restorative Materials, by Lana Emika Lyngdoh Nongbari, July 2000.
(4) Carried out a number of collaborative activities with NIT Silchar and NERIST Itanagar.
(5) Member of Indian Welding Society (Membership number L-01160), Chairman, Guwahati Center (March 2011 to January 2015), responsible for conducting activities of IWS in North Eastern region.
(6) Associate Editor of Journal of Institution of Engineers (India), Series C from 2013
(7) BOG member of SOET, IGNOU in 2013.
(8) Court Member of Assam Science and Technology University from November 2013.
(9) Was involved in the accreditation of various colleges in Assam from ASTU side.
(10) Visited interaction meeting on X-ray lithography facility at RRCAT, Indore.
(11) Carried out Academic and Administrative Audit of Tezpur University in a team from 10 December 2013 to 13 December 2013.
(12) Executive Council Member of Assam Science and Technology University from July 2014.
(13) Officiating Director CIT, Kokrajhar since 15th February 2014 to May 2015.
(14) Editorial board member of Mechanics of Advanced Materials and Modern Processes (Springer Journal).
(15) Technical Committee Chairman in National Convention of Production Engineers and National Seminar on Sustainable Manufacturing, July 18-19, 2015, The Institution of Engineers (India), Tripura State Center, Agartala.
(16) Member of GATE Academic Standing Committee from 2015.
(17) External member of Research Advisory committee of some students of NIT Jalandhar.
(18) Editorial board member of IJPTech since August 2016.
(19) Vice-President of AIMTDR since December 2016
(20) Evaluator of 1st National Innovation Talent Contest for Polytechnics held at NITTTR, Kolkata on February, 21-22, 2016.
(21) Academic Committee member of E&ICT Academy, IIT Guwahati, from 2016
(22) AICTE expert committee visit to Varanasi, 9-11, October, 2017.
(23) Visitor's nominee to IIT Kharagpur, IIT Hyderabad, IIT(ISM) Dhanbad and IIT Kanpur
(24) Regional Editor Asia of International Journal of Mechatronics and Manufacturing System
(25) Deputy Section Editor (Mechanical Engineering) for Journal of Engineering
(26) Have been part of selection committees of IITs and NITs.
(27) Chaired a session in CPIE 2018 at Bangkok on 27th June 2018.
(28) Delivered an expert lecture on Friction Stir Welding in a Faculty Development Program on Welding at Assam Engineering College, Guwahati on August 24, 2018.
(29) Visitor's nominee to Engineering and Technology Group for NITs from August 2018 to August 2021.
(30) Board member of IIT Kanpur from August 2018.
(31) Expert committee member of NPDF & ECRA of SERB, DST from November 2018 up to April 2021.

(32) BOG member of NIT Manipur, as Director's nominee from 2018.
(33) BOS member of ME department of NIT MIZORAM since July 2019
(34) Member of the expert committee for evolving the pathway to upgrade the academic infrastructure of National Institute of Foundry and Forge Technology, Ranchi, in year 2019.
(35) Guest of honor in short term course "FEM and Modal Analysis in Engineering" held at NIT Jalandhar during December 24-28, 2019. Also, delivered three lectures on basics of FEM.
(36) Lecture on pedagogy in the 5-day workshop on "3D Printing and Allied Technologies" held at IIT Guwahati during January 5–10, 2020.
(37) Chief guest in the 5-day course on "Fabrication and Application of Micro Devices in Thermo-Fluidic Engineering" from 24.02.2020 – 28.02.2020, at IIT Guwahati. Also, deliver a talk on pedagogy on 27th February 27, 2020.
(38) Designed a thermal sanitizer for killing germs, May 2020.
(39) Senate member of NIT Agartala from July 9, 2020 for a period of two years.
(40) Guest of honor in e-STC on "Industry 4.0 and Smart Manufacturing: Opportunities and Challenges", Organized by NIT Jalandhar from July 20 to July 24, 2020.
(41) Guest of honor in International Conference on Modeling, Simulation and Optimization 2020, National Institute of Technology Silchar, 03-05 August 2020.
(42) Guest of honor in National Online Conference on "Research and Developments in Material Processing, Modelling and Characterization 2020" (RDMPMC 2020) organized by Department of Metallurgical and Materials Engineering in association with the Department of Production and Industrial Engineering, National Institute of Technology Jamshedpur, August 26-27, 2020.
(43) Guest of honor in one-week online Short-Term Course on 'Computational and Experimental Studies on Failure of Materials' held during September 13-17, 2020, at NIT Jalandhar.
(44) Chief Guest in FDP on "Finite Element Methods and Applications", organized by Department of Mechanical Engineering, Rajasthan Technical University, Kota, September 16–20, 2020.
(45) Guest of honor in Conference on Industrial and Manufacturing Systems (CIMS-2020), 09-11, October, 2020, NIT Jalandhar.
(46) Guest of honor in self-sponsored one-week online Short-Term Course on '*Fundamentals & Application of CFD in Industrial Fluid Flow and Heat Transfer'* being held from October 15th -19th, 2020 at NIT Manipur.
(47) Member PAC of DST for Technology Development Programme from December 18, 2020 for three years.
(48) Member of screening committee for SERB-SUPRA. December 25, 2020.
(49) Chief Guest in Valedictory Session" in online FDP on **Machine Learning Applications in Mechanical Engineering (MLAME)** under the banner of Electronics and ICT Academy, NIT Patna, sponsored by Meity, Govt. of India during December 21-26, 2020.
(50) Guest of honor and Chief Advisor in One Week online "**AICTE-ISTE INDUCTION/REFRESHER PROGRAM"** on "**Outcome Based Pedagogic principle for teaching-learning in Engineering Education**", organized by Nowgong Polytechnic, January, 6-12, 2021.
(51) Chief Guest in Online Short Term Course (STC) On Mechatronics, Instrumentation, Intelligent and Bio-Inspired Materials (MIIBM-2021), 10th–14th February, 2021, Department of Mechatronics Engineering IIIT Bhagalpur.
(52) Guest of honor and Chief Advisor in One Week online "**AICTE-ISTE INDUCTION/REFRESHER PROGRAM"** on "**Outcome Based Pedagogic principle for teaching-learning in Engineering Education**", organized by Nowgong Polytechnic, February, 22-27, 2021.
(53) Guest of honor in one-day webinar on "Implementation of NEP2020 in higher and technical education" organized by NIT Manipur on 25-2-2021.
(54) Guest of honor in 5-day webinar on "Numerical Methods in Mechanical Engineering Applications" organized by NIT Manipur on 17-3-2021.
(55) Chief guest in National Conference on Engineering, Science, Technology and Management (NCESTM) 2021 organized by Indira Gandhi Institute of Technology (IGIT), Sarang, Odisha, on March 27-28, 2021.
(56) Chief Guest at Valedictory Function of Ancient Indian Science and Technology (AIST-2021) at NIT Jamshedpur held during 5-10 July 10, 2021.
(57) Co-opted member of Expert Committee-Engineering Sciences of SERB, DST from July 14, 2018.
(58) Member BOS of Mechanical Engineering of NIT Andhra from July 16, 2021.

(59) Member of Empowerment and Equity Opportunities for Excellence in Science (EMEQ)- Task Force Committee 2021, SERB, Delhi.
(60) Participated in a seminar on higher education organized by Vidya Bharati Purvottar on September 23, 2021 at Guwahati.
(61) Advisory Board Member of College of Agribusiness Management, GB Pant University of Agriculture & Technology, from October 6, 2021.
(62) Academic audit of M.Tech. stream Design and Manufacturing of NIT Silchar, November 9, 2021
(63) Guest of honor in AICTE-ISTE INDUCTION/REFRESHER PROGRAM" on "Issues and Challenges in Teaching Learning of Engineering Mechanics and Drawing" organized by Nowgong Polytechnic, Nagaon on 28/12/2021.
(64) Chief Guest in the last session of SHODH Assam organized an "Unsung Hero's Internship" as a part of 75 years of independence celebrations on January 4, 2022.