BIO-DATA of Dr. UDAY SHANKER DIXIT (updated on April 5, 2025)

01. Name: Dr. Uday Shanker Dixit
02. Date of Birth: July 5, 1967
03. Father's Name: Mr. Krishna Shanker Dixit
04. Permanent Address: E2-28, Larica Green Valley, Dharapur, Guwahati, Kamrup (Rural), Assam, India **(Born in Unnao, Uttar Pradesh, now Voter ID of Assam)**
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. Category: General
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: 60 (see Annexure-II)
14. Ph.D. Theses guided: 22 (see Annexure-II), 8 ongoing
15. Publications: Books: 20, Book Chapters: 48, Papers: Journal (173), Conferences (169), Technical Reports (7) (see Annexure-III)
16. Sponsored projects (as PI and Co-PI): 25 (see Annexure-IV)
17. Visits, talks and organization of professional events: (see Annexure-V)
18. Courses taught: 23 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: 52 (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-April 2020
(7) Visitor's nominee to IIT(ISM) Dhanbad since June 2017-June 2020
(8) Visitor's nominee to IIT(Kharagpur) since January 2018-January 2020
(9) Visitor's nominee to IIT(Kanpur) since August 2018, also of all NITs and now all IITs
(10) Member of Board of Governors of IIT Kanpur (July 2018–November 2021)
(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.
(15) AICTE representative for selection committee at HBTU, Kanpur and nominee to UGC expert committee to visit private universities
(16) The article "Energy Absorption Characteristics of Fused Deposition Modeling 3D Printed Auxetic Re-entrant Structures: A Review" chosen as Editor's Choice paper in Journal of Materials Engineering and Performance for 2023 (only six papers are chosen in a year).
(17) Best teacher award by the department for teaching Optimization Methods in Engineering in January-May 2024.
(18) Appreciation mail by HOD for teaching course on Solid Mechanics in July-November 2021 and scoring students' satisfaction score above 4.
(19) Distinguished Paper Award to the article 1053: Shubham Maurya, Vijay Kumar, B.N. Panda, AC Borsaikia, U.S. Dixit, 2025, Inline polymer cable reinforcement in 3D concrete printing with a special nozzle, 10th International Conference on Research into Design (ICoRD'25), January 8–10, 2025, IIT Hyderabad.
(20) Editorial Contribution Award 2025 from Springer Nature
(21) "Utkrisht Lekhan" Samman by Samskar Bharati, Unnao, July 27, 2025.

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

Place: IIT Guwahati Date: September 23, 2024

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 26 years.

Annexure-II

Details of Ph.D. and M. Tech. and M.S. 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 Straightening 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). Adjudged best thesis in the Department of Mechanical Engineering, IIT Guwahati.
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 Enhancement of Autoclaved Aerated Concrete (AAC) Block and its Masonry (defended on 22nd December 2020). Co-Supervisor: Dr. Arun Ch. Borsaikia.
16. Faladrum Sharma, 2022, Sustainability Assessment of Additive Manufacturing in the Presence of Uncertainties (defended on August 26, 2022).
17. Bappa Das, 2024, Application of Cold Metal Transfer Technology for Cladding of ER70S-6 Alloy on AA 6061-T6 Aluminum Alloy (defended on January 11, 2024). Co-Supervisor: Dr. Biranchi N. Panda.
18. Kaustabh Chatterjee, 2024, Effective Utilization of Data for Enhancing the Performance of Manufacturing (defended on January 14, 2024), Co-Supervisor: Dr. Jian Zhang. Adjudged the Best Thesis Award of Operations Research Society of India-Karnataka in the 12th International Conference on Business Analytics and Intelligence (2025-ICBAI) at Madurai.
19. Nitish Bharwaj, 2024, Experimental and Computational Studies on Exit-Hole-Free Friction Stir Spot Welding Process (defended on January 19, 2024), Co-Supervisor: Dr. R. Ganesh Narayanan
20. Nilkamal Mahanta, 2024, Design and Development of a Sterilization Box and its Variants with Different Functionalities (defended on August 22, 2024).
21. Bharat Bhushan, IIT Kanpur Student, 2025, Incremental Sheet Forming: Simulation Studies on Cold Forming and the Development of Induction-Based Tool Heating (defended on September 9, 2025), IIT Kanpur Supervisor: Dr. J. Ramkumar.
22. Deepak Kumar Sharma, NIT Silchar Student, 2026, Environmental Friendly Milling of Inconel 718: Dry, Air-cooled and Bio-based Minimum Quantity Lubrication Machining (defended on January 24, 2026), NIT Silchar Supervisor: Dr. P.K. Singh

M.S. Thesis

1. Basant Kumar Mishra, 2022, Conceptual design of an electric vehicle with regenerative braking, Master of Science by Research in E-Mobility, Department of Electronics and Electrical Engineering, IIT Guwahati, defended on June 9, 2022. Co-Supervisor: Dr. Gaurav Trivedi

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 thermo-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	2017	Dr. A. Ch. Borsaikia

		block masonry shear wall		
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	
52.	Pratik Raj	Modelling and CFD Simulation of Hull of an Underwater Vehicle	2022	
53.	Sangem Hemanth Kumar	Influence of Using Different Elements in FEM Model of Forging	2022	
54.	Nitesh Kumar Agrawal	Elastic-Plastic Stress Analysis of a Thick-Walled Cylinder with Fins	2022	
55.	Manikant Anand	Simulation of Contact of Two Surface Asperities	2022	
56.	Konduru Vijay (Robotics & AI)	Coverage Path Planning of Oil Tank Sludge Cleaning Robot	2023	Dr. P.S. Robi
57.	Rahul Digamber Hajare	Finite Element Analysis of Thermally-Assisted Hydraulic Autofrettage of Cylindrical Pressure Vessels	2025	
58.	Bethi Shashi Preetham	Finite Element Analysis of a Cylindrical Pressure Vessel made of a Functionally Graded Material	2025	
59.	Sourabh Saini	Underwater Navigation and Environmental Mapping Using a Remotely Operated Vehicle in Shallow Lake Conditions	2025	
60.	Abhishek	Design of Hull of An Autonomous Underwater Vehicle	2025	

Number of Ph. D. projects in progress: 8

Post-doctoral fellow

1. Dr. Praveen Kumar Bannaravuri, Laser based surface modification, 2018-19.
2. Dr. Pagidi Madhukar, Food grain storage system, 2022-24 (with Dr. L.M. Pandey as co-supervisor)

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, 2022 (editor), Electric Discharge Hybrid-Machining Processes: Fundamentals and Applications, CRC Press, Boca Raton.
18. U.S. Dixit, Nelson Muthu and S.M. Kamal, 2023, Strength of Materials, All India Council for Technical Education, New Delhi. ISBN: 978-81-960576-6-4.
19. U.S. Dixit (editor), R. Echempati (editor) and S. Dey (editor), 2023, Engineering Pedagogy: A Collection of Articles in Honor of Prof. Amitabha Ghosh, Springer Nature, Singapore. ISBN 978-981-19-8015-2.
20. P.M. Dixit and U.S. Dixit, 2025, Plasticity: Fundamentals and Applications, Second edition, CRC Press, Boca Raton. ISBN: 9781032383996.

Translated Book:

A. Ghosh, U.S. Dixit (Hindi translation), Prachin Bharat me Khagol Vigyan, Nikhil Publishers & Distributors, Agra. ISBN: 978-93-5552-394-5.

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, Institution of Engineers (India), 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.
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(1) Course material for IGNOU on Mechatronics, Quality Engineering and Metrology
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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**. (Granted on 15-12-2023). 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 (Granted on 06-07-2023).

3. A MULTIPURPOSE UV-C RADIATION, TEMPERATURE AND HUMIDITY CONTROLLED GADGET FOR ITEM STERILIZATION, DRYING OR STORAGE OF FOOD, Patent 202431072950, Inventors: U.S. Dixit, L.M. Pandey, N. Mahanta, L.G. Sharama.

4. A FLEXIBLE HOODED WARM AND COOLING JACKET WITH CONVERTIBLE SLEEPING BAG, Patent 202431080913, Inventors: A. Dhulekar, U.S. Dixit and F. Sharma, The Patent Office Journal No. 49/2024 Dated 06/12/2024.

5. AN AUTOMATIC STEEL CABLE FEEDING DEVICE FOR EXTRUSION BASED CONCRETE 3D PRINTING, Patent 202331074259 A, Inventors: S. Maurya, B.N. Panda, U.S. Dixit, A. Ch. Borsaikia, The Patent Office Journal No. 46/2024 Dated 15/11/2024.

6. **A SYSTEM AND METHOD FOR INTEGRATED INDUCTION HEATED TOOL INCREMENTAL FORMING OF HIGH-STRENGTH ALLOYS,** Patent 202511134192, Inventors: B. Bhushan, J. Ramkumar, U.S. Dixit, D. Tiwari.

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-condition in turning process by measurement of cutting forces and vibrations	DST	Rs. 1200000 approx.	June 2000-September 2002	Prof. A. D. Sahasrabudhe
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 2002-2003	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. Guwahati	Rs. 60000/-	May 2010	
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 and RC-UK	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 with UK team
18.	Estimation of	DRDL,	Rs. 9, 70,000/-	January	Dr. Pankaj Biswas

	temperature distribution in welding	Hyderabad		2015-January 2020	
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, Project Analyst and Advisor
22	Technology Innovation Hub on "System simulation, modelling and visualization"	DST	About Rs. 100,000,00,00	July 2020 to January 2026.	As an advisor. Director of IITI DRISHTI CPS Foundation from 28.01.2022 to 09.01.26
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
24	Pandit Hemchandra Mission for Popularization of Science and Assamese Culture	Pandit Hemachandra Goswami Foundation	Rs. 28,00,000 (approx.)	May 2023 to April 2026	Dr. Sukanya Sharma and Dr. L.M. Pandey
25	Exploration of aquatic ecosystem of river Brahmaputra	IITG TIDF	Rs. 30 lakhs (approx.)		

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. Invited talk entitled "Catching up with the recent trends in Mechanical Engineering with NEP2020", in the 3rd International Conference on "Recent Advancements in Mechanical Engineering (ICRAME 2022)" during 04-06th February 2022, held at NIT Silchar.
137. Lecture on "Sustainability of Additive and Subtractive Manufacturing Process" in a two-day online seminar on "Additive and Subtractive manufacturing for advanced engineering applications: Challenges and Future Aspects" on February 24-25, 2021, organized at IIT Roorkee.
138. Lecture on "Mechanical Engineering Education as per NEP 2020" in AICTE Sponsored QIP Short Term Course on Additive Manufacturing of Biomedical and Aerospace Components, held at Indian Institute of Information Technology, Design and Manufacturing (IIITD&M), Chennai, from February 21, 20222 to February 26, 2022.
139. Science Day Lecture on "Technology and National Identity" at Think India, NIT Silchar, February 28, 2022.
140. Online Lecture on Introduction to FEM in Faculty Development Program (FDP)/ Short Term Course on "FEM and Modal Analysis in Engineering" (FEMMAE-22) on 11th March, 2022 at NIT Jalandhar, India.
141. Online Talk on "Advanced Manufacturing: Research Opportunities" in in the AICTE-QIP Short-Term Course on Advances in Manufacturing Engineering and Materials held at IIT Indore, April 4-9, 2022.
142. Online talk on "Evolution of Mechanical and Industrial Engineering", organized by a group of Ph.D. students at IIT Delhi, April 13, 2022.
143. Online talk on "Sustainability aspects of additive manufacturing" in a Karyashala entitled "High end workshop on 3D Printing, Nano-Tribology and Characterization of Materials" at NIT Srinagar, August 31, 2022.
144. Keynote talk on "Modeling and optimization of laser based forming processes" in the virtual International Conference on "Laser Assisted Material Processing (LAMP-2022)", IIT Kharagpur, August 29-31, 2022.
145. An online talk on "Sustainability aspects of additive manufacturing" in a faculty development program on "Advances in Material Processing and Additive Manufacturing" sponsored by E&ICT Academy, PDPM IIIDM Jabalpur on September 2, 2022.
146. An online talk on "Design for Remanufacturing" International Workshop on 'Remanufacturing Capability Building' at National Institute of Advanced Manufacturing Technology, Ranchi, on September 17, 2022.

147. A lecture on "FEM application in welding" in a 5-day course on "Underwater Welding" organized in IITG TIDF, Guwahati, October 12, 2022.
148. A half-day session on Mathematics at SUPER-50, Kokrajhar for engineering aspirants.
149. A talk on Evaluation and Assessment in a FDP on "Blended Learning" organized by E&ICT Academy, Indian Institute of Technology Guwahati, November 9, 2022.
150. A talk on activities of Technology Innovation Hub of IIT Guwahati and valedictory function address in 12th COPEN at IIT Kanpur, December 8-10, 2022.
151. A talk on "Intelligent machining using sensors and data transfer system" in Two-Week Faculty Development Program on "Advanced Remanufacturing Technology" Sponsored by AICTE Training and Learning (ATAL) Academy in hybrid mode during 12th – 23rd December 2022 at NIAMT, Ranchi.
152. An online talk on "Using Mechanical Engineering for Societal Benefit" in FDP on "Technology Transfer from Lab to Society", Mizoram University, January 21, 2023.
153. Expert Lecture on "Lasers in Surface Engineering", one-week High End workshop titled Emerging trends in Material Science & Engineering for its Applications in Manufacturing Sector under Abhyaas (Karyashala) component of Accelerate Vigyan (AV) Scheme of SERB-DST during 24th Jan 2023 to 30th Jan 2023.
154. Expert Lecture on "Modelling of Phase Transformation: Two Case Studies", one-week High End workshop titled Emerging trends in Material Science & Engineering for its Applications in Manufacturing Sector under Abhyaas (Karyashala) component of Accelerate Vigyan (AV) Scheme of SERB-DST during 24th January 2023 to 30th January 2023.
155. A talk in the book discussion of the book entitled "Strength of Materials" by U.S. Dixit, N. Muthu and S.M. Kamal, organized by AICTE on February 6, 2023.
156. Lecture on Ramcharit Manas at Param Seva Sangh Ashram, North Guwahati, Assam, February 13, 2023.
157. Keynote address on "Impact of 3D Printing in Education" in the 1st International Conference on "Fourth Industrial Revolution and Higher Education 2023", at Dibrugarh University Institute of Engineering and Technology, Dibrugarh, Assam, India on 24th February 2023.
158. Lecture on National Science Day organized by Think India, NIT Nagaland, February 28, 2023.
159. Lecture on National Science Day organized by Think India, NIT Arunachal Pradesh, February 28, 2023.
160. An online keynote talk on "AI in manufacturing in the era of Industry 4.0" in the 4th Research Conclave at NIT Meghalaya, Shillong, March 1, 2023.
161. An online keynote talk on "Modelling and Simulation of Manufacturing Processes", 2nd International Conference on Mechanical Engineering and Emerging Technologies, Bapatla Engineering College, Bapatla, Andhra Pradesh March 3-4, 2023.
162. Keynote lecture entitled "Orienting Manufacturing Education in the Era of Industry 4.0", 7th International Conference on Production & Industrial Engineering (CPIE2023), Dr. BR Ambedkar NIT Jalandhar, March 10–12, 2023.
163. Invited lecture entitled "A holistic and multidisciplinary way of research as per Indian philosophy" in an outreach program entitled "Multidisciplinary Research for Sustainable Society" organized by Center for Multidisciplinary Research, Tezpur University, March 14, 2023.
164. A lecture on Indian Knowledge Systems for students of M.A. (English) of Royal Global University, Guwahati, March 22, 2023.
165. Delivered a talk on Bhagat Singh in "Shaheed Diwas" function at National Law University and Judicial Academy (NLUJA), Assam on March 23, 2023.
166. Delivered a keynote talk on "Past, Present and Future of Mechanical Engineering (in Hindi)" at International conference "Recent Trends in Engineering and Sciences" (RTES – 2023)" in Hindi Language, organized through online mode by SVNIT, Surat at May 2, 2023.
167. Delivered a keynote talk on "Importance of cow protection in Indian culture (in Hindi)" at National Conference on Gau-Vigyan in Modern Life and Medical Science (NCGV-2023), Center for Indian Knowledge Systems, IIT Guwahati, May 20-21, 2023.
168. Talk on Career Planning for class 9 and 10 students of Gandhiji Uchcha Madhyamik Prathmik Bidyapeeth, Digunpar (Leja), May 27, 2023.

169. Talk on “Role of Mathematics and Statistics in Experimental Study” at Department of Chemistry, B. Borooah College, Guwahati, June 20, 2023.
170. Talk on “Optimization: Engineering Philosophy and Some Examples of its Application”, in a One-Week Training Program on "Optimization in Engineering Design and Applications" under DST-STUTI Scheme on August 4, 2023.
171. Lecture on Indian Knowledge Systems in “Narratives of Culture” organized by Department of English, The Assam Royal Global University, Guwahati, in collaboration with Center for Indian Knowledge Systems, IIT Guwahati, September 22, 2023.
172. Addressed students of BTR Super 50 (Engineering), Kokrajhar, September 29, 2023.
173. Lecture on "Mechatronic Systems for Drone Applications" for lectures for a three-month course on "Drone Technology Certificate program" by CET-IITG in collaboration with CICPS-IITG, and IITG-TIDF for 30 participants from the Army, Navy, and Air Force, October 20, 2023.
174. Lecture on "Mechatronic Systems for Drone Applications" for lectures for a three-month course on "Drone Technology Certificate program" by CET-IITG in collaboration with CICPS-IITG, and IITG-TIDF for 30 participants from the Army, Navy, and Air Force, October 26, 2023
175. Online lecture on “Education as per NEP 2020” in a workshop on National Education Policy (NEP) 2020, at NIT Meghalaya on December 11, 2023.
176. Keynote on “Future trends in manufacturing technology and education”, in 2nd International Conference on Futuristic Advancements in Materials, Manufacturing and Thermal Sciences (ICFAMMT 2024), January 19–21, 2024, at the Institute of Infrastructure Technology Research and Management (IITRAM), Ahmedabad, India.
177. Keynote address on “Heat Transfer Modelling in Manufacturing: Relevance and Issues”, International Conference on Thermofluids and Manufacturing Science-2024, 7-8 March, 2024, KIIT Bhubaneswar.
178. Lecture on Indian Knowledge System in Workshop on the Development of Course Curriculum for 4-Year Undergraduate Degree and 3-Year Diploma Engineering and Technology in Line with NEP 2020 for All Government Engineering Colleagues and Polytechnics of Assam, Assam Administrative Staff College, Khanapara, Guwahati, Assam, March 27, 2024.
179. Lecture on “Material Characterization Techniques” in One-Week High-End workshop on "Micromachining and Microfabrication for Biomedical Devices" sponsored by SERB, IIITDM Kancheepuram, April 3, 2024.
180. Lecture on “Mechatronic system for Drone Applications” in a 10-day course on "Drone and Anti-Drone Certificate Program" organized by TIH IIT Guwahati and C-DAC Kolkata, April 16, 2024.
181. Lecture on “IKS and NEP2020” in an event organized by Royal Global University, Assam in collaboration with Bhartiya Shikshan Mandal, Uttar Assam Prant, April 25, 2024
182. Online lecture on “IKS and NEP2020” in Malaviya Mission Teacher Training Centre of Utkal University, Bhubaneswar, May 9, 2024.
183. Interactive session on STEM at various schools in Barhampur, Nagaon, Assam on May 10, 2024.
184. Lecture on Material Characterization Technique Karyashala workshop on “3D PRINTING, BIOMANUFACTURING AND CHARACTERIZATION OF MATERIALS" organized by PDPM IIITDM Jabalpur, May 11, 2024.
185. Podcast, "Bhartiya Paramparik Gyan," presented by Dwarkadhish Holistic Centre in collaboration with the Centre for Indian Knowledge Systems (CIKS) at NIT Calicut, recorded on May 27, 2024.
186. Online talk on Electrical Discharge Hybrid Machining Processes in a five-day online short-term course entitled "Recent trends in manufacturing process" organized by Department of Production Engineering at NIT Agartala, June 17, 2024.
187. Speaker in Engineering Education Seminar “Empowering next generation engineers”, Organizer: ASME, India Foundation, Venue: LNMIT Jaipur, Date: August 31, 2024.
188. Online lecture on IKS: Importance of Puranas, Malaviya Mission Teacher Training Centre MMTTC, Utkal University, Bhubaneswar, September 6, 2024.

189. Online talk on “Relevance of the Puranas in the modern age” in Himalaya Calling, Global Summit: Challenges & Opportunities in the Himalayas, September 10, 2024.
190. Online talk entitled “Deming's Philosophy of Total Quality Management: Comparison with other prominent philosophies and Indian Knowledge System” in Executive Development Program(EDP) on 'Quality Engineering and Management(QEM)' organized by IIT(ISM) - Industry Institute Interaction Facility (IIIF), September 20, 2024.
191. Lecture on "Mechatronic Systems for Drone Applications" for a three-month training on Drone Technology for military people organized by CET-IITG, November 7, 2024.
192. Keynote lecture on “Indian Knowledge System and NEP 2020” in workshop on “Vikasit Bharat 2047-Atmanirbhar North East” organized by NIT Meghalaya, November 15-16, 2024.
193. Plenary lecture on “Digital Twin in Manufacturing: Challenges and Roadmaps” in International Conference on Recent Innovations and Developments in Mechanical Engineering (IC-RIDME 2024), organized by Department of Mechanical Engineering, NIT Meghalaya, November 14–17, 2024.
194. Keynote lecture on “Optimization Through the Lens of Engineers versus Mathematicians” in 4th International Conference on Modelling, Simulation and Optimization, COMSO 2024, organized by NIT Silchar, November 16-18, 2024.
195. Keynote lecture on “Digital Manufacturing: Challenges and Roadmaps” in the International Conference on Mechanical, Aerospace and Metallurgical Engineering 2024 (INCOMAME2024), NITTTR Kolkata, November 22-23, 2024.
196. Faculty Development Program Talk on AI Applications in Manufacturing Sector. Program name: Significance of Emerging Technologies and Intellectual Property Rights (IPR). Organizer: Department of Computer Applications & Research and Development Committee, Mangalmay Institute of Management and Technology. Date: December 16, 2024.
197. Talk on “Roadmap for Developing Digital Twins in Manufacturing” in a Five-day Online Faculty Development Program (FDP) on “Modeling and Application of AI/ML in Engineering”, Organized by Department of Mechanical Engineering, NIT Agartala.
198. Panelist in Edu Elevate, Northeast Educator’s Conclave, organized by Assam Downtown University, on 21-12-2024. Topic: Technology in Education.
199. Keynote speaker in Silver Jubilee function of Jawahr Navodaya Vidyalaya, Darrang on December 22, 2024.
200. Online lecture on Indian Knowledge System and NEP2020, Malaviya Mission Teacher Training Centre MMTTC, Utkal University, Bhubaneswar, January 21, 2025.
201. Online lecture entitled “Design Methodology for Young Entrepreneurs” in Atal Online Faculty Development Program (FDP) on "Design Thinking for Innovation and Entrepreneurship" organized by NITTTR Bhopal, February 10, 2025.
202. Keynote talk in Workshop on Indian and Indigenous Knowledge Systems (IIKS), organized by CIKS & IQAC, Assam Don Basco University, in association with IIT Guwahati and RIWATCH, Arunachal Pradesh, February 21-22, 2025.
203. Interactive sessions with school students on Science Day in PM Shri J.N.V. Darrang, February 28, 2025.
204. Keynote talk on Indian Knowledge Systems in Sanskriti Conclave 2025, CIT Kokrajhar, March 1-2, 2025.
205. Centenary celebration lecture entitled “Modelling and simulation of manufacturing processes”. Department of Mechanical Engineering, IIT (ISM) Dhanbad, March 8, 2025.
206. Lecture on Modelling of Manufacturing Processes in a five-day Short-Term Training Program (STTP) on "Industry 4.0: A Journey towards Modern Manufacturing," organized by the Department of Mechanical Engineering, NIT Jamshedpur, March 19, 2025.
207. Online expert lecture on Industry 4.0 for the ISTE Student Chapter of NERIST, Arunachal Pradesh, March 27, 2025.
208. Online talk on “Achieving sustainable development goals through Vedic lifestyle” in the NEP Orientation and Sensitization Programme at Ramakrishna Mission Vivekananda Centenary College, organized by MMTTC-Assam University, Silchar, May 24, 2025.
209. A talk in Pathya Poothi Prastut Karmshala, organized by Rajyik Vidwat Parishad of Sishu Shikha Samit, Assam, on June 21, 2025, Assam Prakashan Bharati, Guwahati.

210. A talk on Indian Knowledge System in a Personality Development Program organized by ABVP in Cotton University, Guwahati, June 29, 2025.
211. An online talk on SURFACE ENGINEERING WITH THE HELP OF CO_2 LASER, in Hands-on Workshop on Surface Engineering using Cold Spray and Laser Technology, IIT Ropar, July 8, 2025.
212. Online talk entitled "Soft Computing: An Overview" in FDP "Soft Computing Applications in Manufacturing and Automation" on 14.07.2025, NIT Patna.
213. A talk on relevance of Indian Knowledge Systems in NEP2020, Short-Term Training Program (STTP) on the Indian Knowledge System from 28th July to 1st August 2025 at Guwahati Extension Centre of NITTTR Kolkata, July 30, 2025.
214. An online talk on Achieving sustainable development goals by practicing Vedic lifestyle, Short-Term Training Program (STTP) on the Indian Knowledge System from 28th July to 1st August 2025 at Guwahati Extension Centre of NITTTR Kolkata, July 31, 2025.
215. Interactive talk with faculty and students of Department of Mechanical Engineering, NIT Arunachal Pradesh, Jote, Itanagar, August 7, 2025.
216. Interactive talk with Think India Team of NIT Arunachal Pradesh, Jote, Itanagar, August 7, 2025
217. A lecture on mechatronics systems in a Certificate Course on Drone Technology, organized by TIH, IIT Guwahati, August 13, 2025.
218. A talk on Indian Knowledge Systems to third semester B.Tech. students of Mechanical Engineering (ME) and Industrial & Production Engineering (IPE) Department of Assam Engineering College, August 27, 2025.
219. A Virtual session on Himalayan Ancient Wisdom for the Modern Soul, 10th September 2025, organized as part of the Himalaya Calling Global Summit by HILL, UPES, Dehradun.
220. Delivered inaugural talk in One-Day Workshop on "Strengthening Northeast India's Industrial Base through Emerging Welding, WAAM, AI Technologies, and Skill Development", 13th September 2025 at NERIST, Arunachal Pradesh.
221. A talk on Digital Humanities and Indigenous Knowledge Systems in RUSA 2.0/PM-USHA Assam Sponsored Teachers' Training Programme on Mentoring Cutting Edge Research in the Light of NEP 2020, organized by UGC–MMTTC, Gauhati University in collaboration with Mangaldai College (Autonomous) on September 26, 2025.
222. A talk on "Sustainability as per Vedic Traditions" in RUSA/PM-USHA Sponsored Refresher Course on Harnessing Indigenous Knowledge System and Artificial Intelligence for future Innovations in Viksit Bharat@2047, UGC-MMTTC, Gauhati University on October 22, 2025.
223. A lecture on the topic of IKS "Overview: Orientation lecture on vision of reality, holistic view and human wellbeing" during the Transitional Curriculum Program for the First Professional BAMS (2025-26 Batch) prescribed by NCISM, New Delhi, and organized by North Eastern Institute of Ayurveda and Homeopathy, Shillong, on 13th November, 2025.
224. A lecture on IKS to students of IIIT Guwahati at IIT Guwahati on November 15, 2025.
225. Online lecture on "Achieving Sustainable Development by Practising Vedic Lifestyle" in webinar organized by Bharatiya Paramparik Gyan Vigyan Samaj on November 16, 2025.
226. Online lecture on modelling and simulation of manufacturing processes in College of Mechanical, Chemical, and Materials Engineering (CoMCME), Adama Science and Technology University, Ethiopia, December 1, 2025.
227. Online lecture on numerical methods in manufacturing in 5-day FDP on "Frontiers in Advanced Manufacturing Technologies" at IIEST Shibpur, December 2, 2025.
228. Online inaugural lecture in a five-day short-term course entitled "Advances in Additive Manufacturing and its Applications", NIT Agartala, December 8, 2025.
229. Special lecture entitled "Ashtalakshmi Darshan: Inspiring Youth for the Journey towards Viksit Bharat" in Ashtalakshmi Darshan Programme – IIT Guwahati, December 21, 2025.
230. Lecture entitled "Building Research Foundations with AI: From Problem Identification to Strategic Proposal Development" in Five-Day Research Workshop for Delegates from Sherubtse College, Royal University of Bhutan, organized by MFSDS&AI, IIT Guwahati, January 5, 2025.
231. Two lectures in Residential Training for JNV Teachers (Hindi/Humanities class 6-8) for PM SHRI Schools, February 16-20, 2026, IIT Guwahati.

232. Online Lecture on Microstructure Modelling in Faculty Development Programme (FDP) on the theme "Monitoring & Modelling of Manufacturing Processes with Advanced Materials (M3PAM)", February 18, 2026, Department of Mechanical Engineering, IIEST, Shibpur.
233. Talk on IPR Residential Training for JNV Teachers for PM SHRI Schools, February 27, 2026, IIT Guwahati.
234. Lecture and interaction with students of PM SHRI School, Jawahar Navodaya Vidyalaya, Darrang on Science Day, February 28, 2026.
235. Lecture on Mechatronics in the 3-Month "Certificate Course on Electric Vehicle Service Technician" for JCOs of Army, Navy and Air Force organized by CET, CICPS and TIH IIT Guwahati, March 9, 2026.
236. Keynote lecture on "Modelling of Manufacturing Processes" in the International Conference on "Advances in Mechanical and Aerospace Sciences" (ICAMAS-26),_NIT Arunachal Pradesh, March 11, 2026
237. Keynote lecture on "Modelling of Manufacturing Processes" in the International Conference on Mechanical Engineering and Sustainable Technologies (ICMEST 2026), Sikkim Manipal University, March 13, 2026.
238. Special lecture entitled "Ashtalakshmi Darshan: Inspiring Youth for the Journey towards Viksit Bharat" in Ashtalakshmi Darshan Programme – IIT Guwahati, March 20, 2026 (for the students of Delhi and Chhattisgarh).
239. A brief talk to the students of R.K. Mission, Sohra, March 31, 2026.

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.
15. Workshop on Underwater Welding from October 10-14, 2022, IITG TIDF (Section 8 Company).
16. Online course on "Gita for life in the light of Sri Aurobindo" from February 21, 2022 to June 9, 2023 (150 lectures by Mr. Diganta Biswa Sharma). Co-organizer: Prof. Sukanya Sarma

17. Online lecture series on "Nature of Reality in light of ancient Indian Philosophy" by Center of Indian Knowledge Systems, IIT Guwahati and Bhaktivedanta Institute from May 17, 2024 to July 20, 2024. Co-Organizer: Prof. Ramagopal V.S. Uppaluri
18. "Gita for Youths" organized by CIKS, IIT Guwahati from February 4, 2024 to June 30, 2024. Co-Organizer: Dr. L.M. Pandey

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)
7. Online Lecture Series on Classical Mechanics and Symposium on Engineering Pedagogy, March 5-20, 2022, IIT Guwahati (As Organizing Secretary)
8. North-East Research Conclave 2022, May 20-22, 2022, IIT Guwahati (As Chairman Technical Committee)
9. National Symposium on Poorvottar Bharat in the Bharatiya Swadhinata Sangram, September 20-21, 2022, organized by Special Center for the Study of North India, Jawaharlal Nehru University (JNU), New Delhi in collaboration with Indian Knowledge Systems, IIT Guwahati (As President Organizing Committee).
10. National Conference on Gau-Vigyan in Modern Life and Medical Science (NCGV-2023), Center for Indian Knowledge Systems, IIT Guwahati (As Chairman of Organizing Committee), May 20-21, 2023.
11. A day-long seminar in memory of Pandit Hemchandra Goswami: VAISHNAVITE TRADITIONS AND PRACTICES OF NORTHEAST INDIA, Center for Indian Knowledge Systems, IIT Guwahati (As Chairman of Organizing Committee), November 2, 2023.
12. International Conference on the History of Mathematics, Center for Indian Knowledge Systems, IIT Guwahati, in association with NIT Arunachal Pradesh, under the patronage of Indian Society for History of Mathematics, (As Chairman of Organizing Committee), January 19-21, 2024.
13. Sri Aurobindo Youth Conference (Guwahati) by Auroville Foundation in collaboration with IIT Guwahati and Center for Human Sciences, Rishihood University, (As Chairman of Organizing Committee), February 25, 2024.
14. Curtain raiser ceremony of Unravelling Indian Knowledge Across Asia (UNIKKA) 2024, April 6, 2024, (As Chairman of Organizing Committee).
15. ARDB Panel Meeting on Materials & Manufacturing at IIT Guwahati, May 17-18, 2024.
16. Research and Industrial Conclave-Integration'24, August 9-11, 2024, IIT Guwahati (As Chief Editor)
17. 8th National Young Historians' Seminar, 2024 (2nd Chapter), September 21-22, 2024, Centre for Indian Knowledge Systems (CIKS), IIT Guwahati, in collaboration with Akhil Bharatiya Itihas Sankalan Yojana (ABISY), New Delhi, Bharatiya Itihas Sankalan Samiti, Assam (As Chairman of Organizing Committee)
18. International Conference on Unraveling Indian Knowledge Across Asia (UNIKAA), 2024, Centre for Indian Knowledge Systems (CIKS), IIT Guwahati, Indian Institute of Technology Ropar, Punjab, India MDS IndoCan. Inc Ottawa Canada, October 3-5, 2024 (As Chairman of Organizing Committee)
19. Think India: Northeast Summit 2025, Centre for Indian Knowledge Systems (CIKS), IIT Guwahati, February 22-23, 2025 (As Chairman of Organizing Committee).
20. One day Workshop on "Developments in Cross Country Pipelines and Underwater Welding", Organized by TIH IITG-TIDF & Indian Welding Society, IIT Guwahati, April 19, 2025 (As Advisor).

21. The two-day National Seminar on Traditional Healing Practices of Assam by the Centre for Indian Knowledge Systems, IIT Guwahati and funded by the Department of AYUSH, Government of Assam, IIT Guwahati, February 27-28,2026 (As Chairman of Organizing Committee).

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	14	I prepared syllabus. Taught consecutively 6 times from 2007 to 2012. Latest taught in 2025.
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)	7	Recently taught in 2025
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	9	In 2014, more than 175 students took the course, latest in 2024
10.	Continuum mechanics	UG	1	
11.	Mechanical Engineering Lab.	UG	1	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, 2022 as tutor
16.	Computer Integrated Manufacturing	PG	1	
17.	Physics of	PG	3	2015, 2016, 2017

	Manufacturing			
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	2	2020, I designed syllabus, 2024 in Center for Intelligent Cyber-Physical Systems
22	Solid Mechanics I	UG	3	2020, 2021, 2022
23	Solid Mechanics II	UG	3	2021, 2022, 2023

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 Responsibility: Design and Procurement of items	Engineer
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. Member 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, Member Technical Advisory Committee of SPUER-50 program of Bodoland Territorial Region, of Institution's Innovation Council's Internal/External member for the IIC-5 Calendar Year (from September 22 to August 23) , Senate member of IIT (BHU) from April 1, 2023 to March 31, 2025, Research Advisory Committee member of IIT (BHU) from May 7, 2024, Member Board of Studies in Mechanical Engineering Department at Gati Shakti Vishwavidyalaya for 3 years from May 14, 2024. Board of Studies in Mechanical-Mechatronics Engineering in LNMIIT, Jaipur from August 2024.	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

(xxxxiii) Title: Machine learning based automatic gate opener (2022)
Co-supervisor: Dr. B.N. Panda
Students: K. Hrushikesh, B. Sai Vikas Reddy

(xxxxiv) Title: Microcontroller-Based Intelligent Doors and Windows (2022)
Co-supervisor: Dr. B.N. Panda
Students: Maneshwar Singh, Sudesh Chaudhary

(xxxxv) Title: Mechatronics based window control system for automobiles (2022)
Co-supervisor: Dr. B.N. Panda
Students: Amit Sahu, Suraj Kumar

(xxxxvi) Title: CFD simulation of underwater vehicle with different design of wings (minor project in Robotics and AI) (2022)
Student: Korada Pavan Kumar

(xxxxvii) Title: Estimation of roll force in cold rolling using machine learning (2023)
Students: Rahul Sabbarwal, Ritesh Ranjan

(xxxxviii) Title: Evaluation of Forward Slip in Rolling and Wear in Different Lubricated Conditions (2023)
Students: Franshu, Hrishikesh Boro

(xxxxix) Title: Modelling the Effect of Surface Roughness on Friction Using Machine (2024)
Students: Ankit Ojha, Pranav Garg

(xxxxx) Title: A Conceptual Design of a Prototype for Generating Tidal Energy (2024)
Students: Ashutosh Kumar, Saurabh Raj

(xxxxxi) Title: Development of pedagogical gadgets for teaching the concepts of heat transfer (2024)
Students: Krishna Khakholia, Sudiksha Jaiswal

(xxxxxii) Title: Modelling and Simulation of Sheet Metal Forming (2024)
Students: Kumara Swamy BS, Neeraj Kumar

(xxxxxiii) Title: Development of Gadgets for Teaching-Learning of Mechanical Engineering (2025)
Students: Banoth Shashikumar, Bondeli Divyatej Singh

(xxxxxiv) Title: Development of a Water Quality Measurement System Using Surface and Underwater Vessels (2025)
Student: Abhishek Gautam

(xxxxxv) Title: Development of Pedagogical Gadgets (2025)
Students: Keerthiraju Mutthoju, Vikas Ranjan Chaudhari

(xxxxxvi) Title: Cost Comparison of Additive Manufacturing and Injection Molding (2025)
Students: Sarthak Gaur, Shivam Raghuwanshi

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 2020 to September 2024 (two terms, each of two years with some gap)
(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.
(65) Chief Guest at National Seminar (web) on "Composite Materials" held at NITTTR, Kolkata, March 26, 2022.
(66) Panelist in Vidya Bharati Uchcha Shiksha Sansthan (VBUSS) and National Institute of Open Schooling (NIOS) are organized National Symposium on 'Indian Knowledge System' titled 'Assimilating Indian Knowledge System in mainstream education: Mandate of NEP 2020' held on 5th & 6th May, 2022 at NIOS Campus, Noida.
(67) Coordinated a brain-storming session on industry-academia interaction in Taiwan-India 2022 Exchange Workshop and Symposium on Intensifying the Connection of Sustainability Technology, IIT Guwahati, 04-06 September, 2022.

(68) Guest of honor in inauguration of International Workshop on 'Remanufacturing Capability Building' at National Institute of Advanced Manufacturing Technology, Ranchi, on September 15, 2022.
(69) Chief Guest in the induction program for first year undergraduate and dual degree students, NIT Agartala, November15-16, 2022.
(70) Presided an interaction with Students of Non-Formal Sanskrit Education Center of Central Sanskrit University, Delhi, IIT Guwahati, held at December 4, 2022.
(71) Chaired a session on Additive Manufacturing in 7th International Conference on Production & Industrial Engineering (CPIE2023), Dr. BR Ambedkar NIT Jalandhar, March 10–12, 2023.
(72) Delivered a speech as invited guest in a symposium on Panchgavya Ayurveda Chikitsa organized by Bhartiya Gauvansh Rakshan Samvardhan Parishad, Purvottar, at Fancy Bazar, March 15, 2023.
(73) Chief guest in "Shaheed Diwas" function at National Law University and Judicial Academy (NLUJA), Assam on March 23, 2023.
(74) Chief guest in "Model United Nations" Program organized by Think India at IIT Guwahati, May 14, 2023.
(75) Inaugurated Yagya Mandap of Shri Shri Maharudra Yagya in Bordekpar (East), Kamalpur, Kamrup (Assam), May 27, 2023.
(76) Joined as special invitee and speaker in the Inauguration Programme of Bodoland Science Education Project and spoke on Pt. Hemchandra Goswami Mission for popularization of science as Assamese Culture, June 30, 2023.
(77) Participated in NEP curriculum committee of Department of Mechanical Engineering, IIT Tirupati.
(78) Guest of honor in inauguration of Higher Secondary classes in Sankardev Sishu Siksha Niketan, North Guwahati on August 10, 2023.
(79) Chief Guest in Freshmen Social 2023 at Saltbrook Mirza (A senior secondary school), August 12, 2023.
(80) Addressed the inaugural session of 7-day Faculty Development Program on "Narratives of Culture" organized by Department of English, The Assam Royal Global University, Guwahati, in collaboration with Center for Indian Knowledge Systems, IIT Guwahati, September 21-29, 2023.
(81) Chaired one technical and two keynote lecture session in AIMTDR 2023 at IIT (BHU), Varanasi, December 8-10, 2023.
(82) Joined as a special guest along with Dean (R&D) and Dean (PRBR) in 18th Joydam festival of Deori tribe and addressed the gathering in Assamese, February 12, 2024.
(83) Visited Indian Oil Bongaigaon Refinery to carryout root cause of analysis of sudden stoppage of motor, February 23, 2024.
(84) Jury Member at Regional Professional Circle Convention of Eastern Region- II at NTPC Bongaigaon, March 2, 2024.
(85) Chief Guest in the inauguration of the International Conference on Thermofluids and Manufacturing Science-2024, 7-8 March, 2024, KIIT Bhubaneswar.
(86) Session Chair in 4th International Conference on River Corridor Research Management, March 7–9, 2024, IIT Guwahati.
(87) Chief Guest in the inauguration of DB Public School at Bhat Bigha, Nalanda on March 29, 2024, a school opened by IIT Guwahati alumni.
(88) UGC virtual visit to St. Xavier's University, Kolkata on June 15-16, 2024.
(89) UGC virtual visit to YBN University, Ranchi on June 27-28, 2024.
(90) Session chair in International Conference on Bharatiya Traditional Knowledge System, 2024 (BTKS 2024), held July 26-27, 2024, NITTTR Kolkata.
(91) Session chair in 8th National Young Historians' Seminar, 2024 (2nd Chapter), IIT Guwahati, September 21-22, 2024.
(92) Chaired three sessions and participated in one panel discussion in International Conference on Unraveling Indian Knowledge Across Asia (UNIKAA), 2024, Centre for Indian Knowledge Systems (CIKS), IIT Guwahati, October 3–5, 2024.
(93) Guest of honor in the inaugural ceremony of workshop on "Vikasit Bharat 2047-Atmanirbhar North East" organized by NIT Meghalaya, November 15-16, 2024.
(94) Guest of honor in the inaugural of 4th International Conference on Modelling, Simulation and Optimization, COMSO 2024, organized by NIT Silchar, November 16-18, 2024.
(95) UGC virtual visit to Uttarakhand Open University, Haldwani, December 19-20, 2024.

(96) Chaired online session of Bharatiya Jnana Sourabh, international conference, held as a part of Bhartiya Samskruti Utsava-7, Sedam, January 31, 2025.
(97) Chief Guest in Atal Online Faculty Development Program (FDP) on "Design Thinking for Innovation and Entrepreneurship", organized by NITTTR Bhopal, February 10, 2025.
(98) Second Advisory Board Meeting of IKS, UEM, Kolkata, February 14, 2025.
(99) Guest of Honor in State Conference of ABVP, Central Agriculture University, Iroisemba, Manipur, February 15–17, 2025.
(100) Guest of Honor in Workshop on Indian and Indigenous Knowledge Systems (IIKS), organized by CIKS & IQAC, Assam Don Basco University, in association with IIT Guwahati and RIWATCH, Arunachal Pradesh, February 21-22, 2025.
(101) Examiner in Project presentation (March 7, 2025) of Participants of SoE mechanical training for Tata Steel Engineers held at IIT Guwahati.
(102) Judge in NTPC Professional Circle Convention-2025, NTPC Bongaigaon, April 18, 2025.
(103) Certificate of Appreciation by FICCI FLO Northeast Chapter for organizing STEM event for school children on June 10, 2025 at IIT Guwahati.
(104) Chief Guest in the inauguration of Indian Knowledge Systems Center, Bhattadev University, Bajali, Assam on June 26, 2025.
(105) Attended the second Board of Studies meeting for the Mechanical Engineering Program on 11 July 2025 at Gati Shakti Vishwavidyalaya, Vadodara, Gujrat.
(106) Chief Guest in the Inaugural function of the online FDP “Soft Computing Applications in Manufacturing and Automation” on 14.07.2025 at 2:45 PM at NIT Patna.
(107) Joined as a panelist in a one-day conference titled “Envisioning Tomorrow’s University: A Transdisciplinary Dialogue on the Futures of Education, September 2, 2025, organized by MIT World Peace University, Goa, Venue: IIT Guwahati.
(108) Chaired a session in the National Academic Spiritual-Cultural Conference (Xutradhar-2025) with theme “Mahapurusha Srimanta Sankaradeva as the Pioneer of Cultural Nationalism, organized by Xutradhar-Kutumba Surakshya Parishad, held on September 5, 6 and 7, 2025 at Sri Sri Batadrava Than (Bardowa), Nagaon, Assam.
(109) Judged Annual School Exhibition 2025 of St. Mary’s Higher Secondary School, Guwahati, on October 16, 2025.
(110) Chaired two sessions and talked on the genesis of AIMTDR based on the compilation of Prof. Amitabha Ghosh in 10th International & 31st All India Manufacturing Technology, Design & Research (AIMTDR 2025), December 11–13, 2025, IIT Indore.
(111) Panel member in a session on NEP2020 in 36th State Convention of Bhartiya Itihas Sankalan Samiti, Assam, Dakshin Kamrup College, Mirza, January 3, 2026.
(112) Panel member in the ceremony “Language and Legacy” to commemorate the Birth Anniversary of Pt. Hemchandra Goswami, January 9 (a day after the Birth Day of Pt. Goswami), 2026, India International Center, New Delhi.
(113) Conducted Academic Audit of Mechanical Engineering Department of NIT Meghalaya, March 19, 2026.
(114) Conducted Central Academic Audit of NIT Meghalaya, March 30, 2026.