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| **Manas Das** Address: C 108, Dept. of Mechanical Engg., I.I.T Guwahati  Contact No: +91-9954065023 (mob)  +91-361-2583427 (office)  Fax: +91-361-2582699  E-mail: [**manasdas@iitg.ernet.in**](mailto:manasdas@iitg.ernet.in)  **manas52@gmail.com** | |
| **AREAS OF INTEREST** | * Advanced Finishing and Nano-finishing Processes * Magnetorheological Finishing (MRF) Process * Advanced / Non-traditional Machining Processes * Machining of Advanced Engineering Materials * Micromachining Process * Tribology |
|  | **Journal (International):**   1. Uday S. Dixit, Manas Das, Editorial: Special Issue on enhancing the performance of traditional machining, Int. J. Machining and Machinability of Materials, Vol. 18, pp. 449-451, 2016. 2. Arpan Kumar Mondal, Anche Lohit, Pankaj Biswas, Swarup Bag and Manas Das, Prediction of weld-induced distortion of large structure using equivalent load technique, Vol.232, pp.499-512, 2016. 3. D. Sam Dayala Dev, Enni Krisha, Manas Das, A Novel Plasma assisted atomistic surface finishing on freeform surfaces of fused silica, International Journal of Precision Technology, pp. 262-276, Vol. 6, 2016. 4. Anwesa Barman, Manas Das, Simulation of Magnetic Field assisted Finishing (MFAF) Process Utilizing Smart MR Polishing Tool, Journal of The Institution of Engineers (India): Series C, 2016, Vol.98, pp. 75-82, 2017. 5. Anwesa Barman, Manas Das, Design and Fabrication of a Novel Polishing Tool for Finishing Freeform Surfaces in Magnetic Field assisted Finishing (MFAF) Process, Precision Engineering, Vol.49, pp. 61-68, 2017. 6. Anwesa Barman, Manas Das, Soft computing techniques to model and optimize magnetic field-assisted finishing process and characterization of the finished surface, Proc IMechE Part C: J Mechanical Engineering Science, Vol. 232, pp. 3156-3168, 2017. 7. Anwesa Barman, Manas Das, Toolpath generation and finishing of bio-titanium alloy using novel polishing tool in MFAF process, Int J Adv Manuf Technol, DOI: 10.1007/s00170-017-1050-2, 2017. 8. Anupam Alok, Manas Das, Cost-effective way of hard turning with newly developed HSN2-coated tool, Materials and Manufacturing Processes, Vol 33, pp. 1003-1010, 2017. 9. Chandan Kumar, Manas Das, Experimental investigation and metallographic characterization of fiber laser beam welding of Ti-6Al-4V alloy using response surface method, Optics and Lasers in Engineering, Vol.95, pp. 52-68, 2017. 10. Anwesa Barman, Manas Das, Nano-finishing of bio-titanium alloy to generate different surface morphologies by changing Magnetorheological polishing fluid compositions, Precision Engineering, Vol. 51, pp. 145-152, 2018. 11. Anwesa Barman, Manas Das, Magnetic field assisted finishing process for super-finished Ti alloy implant and its 3D surface characterization, Proc IMechE, Journal of Micromanufacturing, Vol. 1 (2), pp. 154-169, 2018. 12. Anwesa Barman, Manas Das, Simulation and experimental investigation of finishing forces in magnetic field assisted finishing process, Journal of Materials and Manufacturing Processes Vol.33, pp.1223-1232, 2018. 13. Chandan Kumar, Manas Das, C.P. Paul, K.S. Bindra, Characteristics of ﬁber laser weldments of two phases (α+β) titanium alloy, Journal of Manufacturing Processes, Vol.35, pp. 351-359, 2018. 14. Chandan Kumar, Manas Das, C.P. Paul, K.S. Bindra, Comparison of bead shape, microstructure and mechanical properties of ﬁber laser beam welding of 2 mm thick plates of Ti-6Al-4V alloy, Optics and Laser Technology, Vol.105, pp. 306–321, 2018. 15. Anupam Alok, Manas Das, Multi-objective optimization of cutting parameters during sustainable dry hard turning of AISI 52100 steel with newly develop HSN2−coated carbide insert, Measurement, Vol.133, pp. 288–302, 2018. 16. D. Sam Dayala Dev, Enni Krisha, Manas Das, Development of a non-contact plasma processing technique to mitigate chemical network defects of fused silica with life enhancement of He-Ne laser device, Optics and Laser Technology, Vol. 113, pp.289-302, 2019. 17. 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Anupam Alok and Manas Das, Analysis of chip formation of AISI 52100 steel during hard turning with newly developed HSN2 coated carbide insert, International Conference on Recent Innovations and Developments in Mechanical Engineering (IC-RIDME 2018), National Institute of Technology Meghalaya, Shillong, Meghalaya, November 8-10, 2018 (Paper ID 299). 24. Chandan Kumar and Manas Das, Microstructural characterization in fiber laser weldments of TI-6Al-4V alloy, International Conference on Recent Innovations and Developments in Mechanical Engineering (IC-RIDME 2018), National Institute of Technology Meghalaya, Shillong, Meghalaya, November 8-10, 2018 (Paper ID 319). 25. Pranesh Dutta, Anwesa Barman, Abhinav Kumar and Manas Das, Development of electrochemical micro machining (ECMM) experimental set-up for fabrication of micro-holes, International Conference on Recent Innovations and Developments in Mechanical Engineering (IC-RIDME 2018), National Institute of Technology Meghalaya, Shillong, Meghalaya, November 8-10, 2018 (Paper ID 351). 26. Enni Krishna, D Sam Dayala Dev and Manas Das, Induction of conditioning and its optimization in non-conventional plasma machining process of fused silica, International Conference on Recent Innovations and Developments in Mechanical Engineering (IC-RIDME 2018), National Institute of Technology Meghalaya, Shillong, Meghalaya, November 8-10, 2018 (Paper ID 349). Received best oral presentation award. 27. Enni Krishna, D Sam Dayala Dev and Manas Das, Simulation for uniform plasma processing of hemispherical shell, International Conference on Computational Methods in Manufacturing (ICCMM 2019), March 8-9, 2019, IIT Guwahati 2019 (Paper ID ICCMM2019\_071). 28. Anupam Alok and Manas Das, Finite element based simulation for hard turning operation of AISI 4340 work piece using Al2O3 coated carbide tool, International Conference on Computational Methods in Manufacturing (ICCMM 2019), March 8-9, 2019, IIT Guwahati 2019 (Paper ID ICCMM2019\_069). 29. Deepak Mylavarapu, R. Ganesh Narayanan and Manas Das, Temperature Prediction during Self-Pierce Riveting of Sheets by FEA-ANN Hybrid Model, International Conference on Computational Methods in Manufacturing (ICCMM 2019), March 8-9, 2019, IIT Guwahati 2019 (Paper ID ICCMM2019\_141). 30. 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Bose University of Science and Technology, YMCA and Society for Fusion of Science and Technology, Delhi. 34. Anupam Alok, M.S. Niranjan, and Manas Das, Synthesis and Characterization of Sintered Magnetic Abrasive Particles having Alumina and Carbonyl Iron Powder, 8th International Symposium on Fusion of Science and Technology (ISFT-2020) January 6-10, 2020, Faridabad, India, J.C. Bose University of Science and Technology, YMCA and Society for Fusion of Science and Technology, Delhi. 35. Manjesh Kumar, Abhinav Kumar, Anupam Alok and Manas Das, Magnetorheological method applied to optics polishing: A review, 8th International Symposium on Fusion of Science and Technology (ISFT-2020) January 6-10, 2020, Faridabad, India, J.C. Bose University of Science and Technology, YMCA and Society for Fusion of Science and Technology, Delhi. 36. Ambrish Singh, Sajan Kapil, Manas Das, “Discrete Element Analysis of Gravity-Driven Powder Flow in Coaxial Nozzles for Directed Energy Deposition”, National Conference on Research and Development in Material Processing, Modelling and Characterization, Jamshedpur India, 2020. 37. Anwesa Barman, Manas Das, Exploration of Finishing Capability of Developed Polishing Tool in Hybrid Magnetic Field Assisted Finishing Process to Finish Complex Freeform Surfaces of Femoral Component of Prosthetic Knee Joint, Proceedings of the ASME 2020 15th International Manufacturing Science and Engineering Conference MSEC2020 June 22-26, 2020, Cincinnati, OH, USA, paper ID MSEC2020-8271. 38. Ambrish, Manjesh, Abhinav, Hari, Anupam recent conference   **Best paper awards**   1. Enni Krishna, D Sam Dayala Dev and Manas Das, Induction of conditioning and its optimization in non-conventional plasma machining process of fused silica, International Conference on Recent Innovations and Developments in Mechanical Engineering (IC-RIDME 2018), National Institute of Technology Meghalaya, Shillong, Meghalaya, November 8-10, 2018 (Paper ID 349). Received best oral presentation award. 2. Kunal sharma, Manas Das and Ambrish Singh, Development of a magnetic field assisted finishing (MFAF) process for nanofinishing of ferromagnetic air compressor cylinder, International Conference on Recent Innovations and Developments in Mechanical Engineering (IC-RIDME 2018), National Institute of Technology Meghalaya, Shillong, Meghalaya, November 8-10, 2018 (Paper ID 347). Received best poster presentation award. 3. Enni Krishna, K Sreelakshmy, D Sam Dayala Dev, Manas Das, Material removal rate comparative study for medium pressure plasma processing of fused silica, International Conference on Precision, Meso, Micro and Nano Engineering (COPEN 2019), IIT Indore.   **Book Chapter:**   1. Chandan Kumar, M. Das, P. Biswas, A 3-D finite element analysis of transient temperature profile of laser welded Ti-6Al-4V alloy, Lasers Based Manufacturing, Topics in Mining, Metallurgy and Materials Engineering, Springer 2015, pp. 421-440, DOI: DOI 10.1007/978-81-322-2352-8\_21. 2. S. Deepak, Manas Das, R. Ganesh Narayanan, Prediction of Temperature Evolution during Self-Pierced Riveting of Sheets, Manufacturing Process Modeling and Optimization Strategies, IGI Global Publication 2017, Hershey PA 17033-1240, USA, DOI: 10.4018/978-1-5225-2440-3.ch018. 3. Chandan Kumar, Manas Das, C. P. Paul, B. Singh, Experimental study of fiber laser beam welding of 5 mm thick Ti-6Al-4V alloy, Applications of Lasers in Manufacturing, Springer 2018, pp. 45-67, DOI: 10.1007/978-981-13-0556-6\_3. 4. D. Sam Dayala Dev, Enni Krisha, Manas Das, Novel Finishing Process Development for Precision Complex-Shaped Hemispherical Shell by Bulk Plasma Processing, Precision Product-Processes Design and Optimization, Springer 2018, DOI: https://doi.org/10.1007/978-981-10-8767-7\_12. 5. Manas Das, U. S. Dixit, Advanced Machining Processes, Introduction to Mechanical Engineering, Springer 2018, pp. 269-296, DOI: <https://doi.org/10.1007/978-3-319-78488-5_9>. 6. Anupam Alok and Manas Das, Analysis of Chip Formation of AISI 52100 Steel During Hard Turning with Newly Developed HSN2 Coated Carbide Insert, Advances in Mechanical Engineering, Lecture Notes in Mechanical Engineering, Springer Nature Singapore Pte Ltd., 2020, pp. 429-437, DOI: 10.1007/978-981-15-0124-1\_38. 7. Chandan Kumar and Manas Das, Microstructural Characterization of Ti-6Al-4V Alloy Fiber Laser Weldments, Advances in Mechanical Engineering, Lecture Notes in Mechanical Engineering, Springer Nature Singapore Pte Ltd., 2020, pp. 475-486, DOI: 10.1007/978-981-15-0124-1\_43. 8. Enni Krishna, D Sam Dayala Dev and Manas Das, Induction of Conditioning Gas and Its Optimization in Nonconventional Plasma Machining Process of Fused Silica, Advances in Mechanical Engineering, Lecture Notes in Mechanical Engineering, Springer Nature Singapore Pte Ltd., 2020, pp. 549-559, DOI: 10.1007/978-981-15-0124-1\_50. 9. Kunal Sharma, Ambrish Singh, Anwesa Barman, Manas Das, Magnetic Field Assisted Finishing of Ferromagnetic Air Compressor Cylinder Using Smart MR Polishing Fluid, Advances in Mechanical Engineering, Lecture Notes in Mechanical Engineering, Springer Nature Singapore Pte Ltd., 2020, pp. 539-548, DOI: 10.1007/978-981-15-0124-1\_49. 10. Pranesh Dutta, Anwesa Barman, Abhinav Kumar and Manas Das, Design and Fabrication of Electrochemical MicroMachining (ECMM) Experimental Setup for Micro-hole Drilling, Advances in Mechanical Engineering, Lecture Notes in Mechanical Engineering, Springer Nature Singapore Pte Ltd., 2020, pp. 561-573, DOI: 10.1007/978-981-15-0124-1\_51. 11. Deepak Mylavarapur, Ganesh Narayanan, Manas Das, Chapter 24: Temperature Prediction During Self-pierce Riveting of Sheets by FEA-ANN Hybrid Model, Advances in Computational Methods in Manufacturing, Springer Singapore, 2019, pp. 283-294. 12. Anwesa Barman, Manas Das, Chapter : Generation of Nano-Level Surface Finish by Advanced Nano-Finishing Processes, Accuracy Enhancement Technologies for Micromachining Processes. Lecture Notes in Mechanical Engineering, Springer Singapore, 2020, pp. 199-214, DOI: 10.1007/978-981-15-2117-1\_10. 13. Chandan Kumara, C. P. Paul, Manas Das, K. S Bindra, Chapter 2: Fiber Laser Welding of Ti-6Al-4V Alloy, Elsevier Series of Handbooks in Advanced Manufacturing, Handbook- II Advanced Welding and Deforming, Editior: J. Paulo Davim and Kapil Gupta, 2021. 14. Anwesa Barman, Manas Das, Chapter 17: Fundamental understanding and latest developments in magnetic field-assisted finishing processes, Elsevier Series of Handbooks in Advanced Manufacturing, Handbook- I Advanced Machining and Finishing, Editior: J. Paulo Davim and Kapil Gupta, 2021.   **Patent:**   1. Isro patent 2. Ambrish Singh, Sajan Kapil, Manas Das, A gravity-based, Gas-Free and Omnidirectional Laser PowderCladding Head, Indian Patent, Application Number: 202031035876. | Patent Filed. 3. Manjesh Kumar, Manas Das, An arrangement for polishing poppet valve by magnetorheological fluid-based finishing process, Indian Patent, Application Number: 202131013271. | Patent Filed. |

**PG Students**

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| **S. No.** | **Name** | **Roll No.** | **Thesis title** | **Start** | **End** |
| 1 | Anche Lohit | 124103073 | Prediction of weld induced distortion of large structure  Co-supervisor: Dr. Pankaj Biswas | 15.12.2012 | 03.07.2014 |
| 2 | Pritam Akhuly | 134103014 | Computational Fluid Dynamics simulation of Magnetorheological polishing fluid for finishing in Magnetic Field Assisted Finishing Process  Co-supervisor: Dr. Pankaj Biswas | 15.12.2013 | 13.07.2015 |
| 3 | Kundan kumud | 134103064 | Numerical Simulation of Magnetic Field Assisted Tungsten Inert Gas Welding Process  Co-supervisor: Dr. Sukhomay Pal | 15.12.2013 | 14.07.2015 |
| 4 | Deepak Mylavarapu | 144103097 | Experimental and Numerical Simulation of Self-Piercing Riveting process  Co-supervisor: Dr. Ganesh Narayanan |  |  |
| 5 | Sujeet Kumar | 144103086 | Experimental Investigation and Numerical Simulation of Electrochemical Micromachining | 15.12.2014 | 12.07.2016 |
| 6 | Amit Sharma | 154103045 | Design and development of magnetorheological finishing experimental set up for nanofinishing of bio-titanium alloy  Co-supervisor: Dr. Balkrishna Mehta | 15.12.2015 | 19.06.2017 |
| 7 | Hardeep Singh | 154103069 | 3-D heat transfer modelling of laser beam welding process | 15.12.2015 | Continuing |
| 8 | Pranesh Dutta | 154103016 | Design and development of electrochemical micromachining (ECMM) experimental setup for microstructure fabrication | 15.12.2015 | 07.07.2017 |
| 9 | Mohammad Shafique (Foreign student) | 154103121 | Nanofinishing of miniature gears using rotational-magnetorheological abrasive flow finishing process  Co-supervisor: Dr. Pankaj Biswas | 15.12.2015 | 15.07.2017 |
| 10 | Major Kunal Sharma | 164103114 | Nano-Finishing of Air Compressor Cylinder of Battle Tanks and Combat Vehicles by using Magnetic Field Assisted Finishing (MFAF) Process | 15.12.2016 | 15.06.18 |
| 11 | Parash Jyoti Mishra | 164103051 | CFD simulation and numerical assessment of mixing two pure liquids in a microchannel  Co-supervisor: Dr. Balkrishna Mehta | 15.12.2016 | 12.07.18 |
| 12 | Vikash Kumar | 164103129 | CFD simulation of miniature gear finished using magnetorheological abrasive flow finishing (MRAFF) process | 15.12.2016 | 06.07.18 |
| 13 | Subhra Sahu | 174103075 | Surface Texturing through Electrochemical Micromachining | 15.12.2017 | 12.07.19 |
| 14 | Arvind Singh | 174103114 | Multiphysics simulation of electrochemical micro machining (ECMM) process  Co-supervisor: Dr. Balkrishna Mehta | 15.12.2017 | 12.07.19 |
| 15 | Kuldeep Dewangan | 174103111 | Numerical simulation for heat transfer analysis in laser additive manufacturing process | 15.12.2017 | 12.07.19 |
| 16 | Md. Sarfraz Ahmad | 184103314 | Uniform finishing of miniature gear using flow restrictor by MR fluid-based finishing process | 15.12.2018 | 15.07.2020 |
| 17 | Gaurav Garg | 184103207 | Surface Texturing by Electrochemical Micromachining | 15.12.2018 | 10.07.2020 |
| 18 | Sunil Kumar | 184103221 | Fabrication of micro-tools by using electrochemical micromachining | 15.12.2018 | 14/08/2020 |
| 19 | Rahul Kr. Bharti | 184103322 | CFD Analysis of MR fluid Applied for Uniform Finishing of Miniature Gear under External Magnetic Field in R-MRAFF process | 15.12.2018 | 10.07.2020 |
| 20 | Suraj Kumar | 194103211 | ECM |  | Continuing |
| 21 | Rohit Sarma | 194103232 | MRAFF |  | Continuing |
| 22 | Sweta Markam | 194103233 | EDM |  | Continuing |
| 23 | Abhishek Patil | 204103101 |  |  | Continuing |
| 24 | Dambarudhar Sing | 204103012 |  |  | Continuing |
| 25 | Sanjay Soni | 204103225 |  |  | Continuing |
| 26 | Hemant Kumar | 204103409 |  |  | Continuing |

**PhD students**

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| **No.** | **Name** | **Roll No.** | **Thesis title** | **Start** | **End** |
| 1 | Anwesa Barman | 126103024 | Nanofinishing of Freeform Surface using Magnetic Field Assisted Finishing (MFAF) Process | 20/07/2012 | 23.05.2018 |
| 2 | Chandan Kumar | 126103018 | Experimental Investigation and Numerical Simulation of Fiber Laser Welding of Ti-6Al-4V Alloy and SS-316L | 20/07/2012 | 20.07.2018 |
| 3 | Anupam Alok | 136103033 | Experimental investigation and Modelling of hard turning operation | 2-01-2014 | 29/07/2019 |
| 4 | Kelli Durga Prasad | 146103013 | Experimental Investigation and Modelling of Magnetic Field Assisted Arc Welding Process  Co-supervisor: Dr. Sukhomay Pal | 23-07-2014 | Continuing |
| 5 | D. Sam Dayala Dev | 146103034 | Nanofinishing and surface characterization of inertial sensor microstructures using medium pressure plasma | 23-07-2014 | 25/07/2019 |
| 6 | Abhinav Kumar | 176103020 | Electrochemical micromachining | 20/07/2017 | Continuing |
| 7 | Ambrish Singh | 176103107 | Additive manufacturing | 20-12-2017 | Continuing |
| 8 | Manjesh kumar | 176103021 | Nanofinishing of prosthetic components | 20/07/2017 | Continuing |
| 9 | Enni Krishna | 186103016 | Plasma polishing of inertial sensor | 20/07/2018 | Continuing |
| 10 | Lieutenant colonel Kunal Sharma | 186103020 | Nanofinishing of Military components | 20/07/2018 | Continuing |
| 11 | Atul Singh Rajput | 196103009 | Magnetorheological abrasive flow finishing process | 20/07/2019 | Continuing |
| 12 | Hari Narayan Singh Yadav | 196103013 | Medium plasma polishing process | 20/07/2019 | Continuing |
| 12 | Ranajit Mahanti | 196103116 | Micro-EDM |  | Continuing |

