

**Name:** RATNAKAR DAS

**Address for Correspondence:** Assistant Professor  
Room no:228, Faculty Block  
Department of Manufacturing Engineering  
National Institute of Foundry and Forge Technology,  
Hatia, Ranchi-834003, Jharkhand India

**E. mail:** ratankd@gmail.com, ratnakar.nifft@gov.in

**Contact no:** +91-9504774015

**Research Areas:** Machining of Metals, non metals and Composites. Metal forming. Bio-composites. Micro and nano-manufacturing.

**Academic Qualifications:**

Doctor of Philosophy (PhD)	IIT Guwahati
M.E (Production Engineering)	IEST Sibpur

**Subjects Taught at Undergraduate Level:**

Advanced Manufacturing Processes  
Engineering Mechanics  
Metal Forming Technology  
Advanced Metal Forming  
Basic Manufacturing Processes  
Metal Cutting and Tool Design  
Machine Tool Design  
Automobile Engineering  
Rapid Prototyping and Reverse Engineering  
Metrology, Quality Control and Reliability Engineering

**Subjects Taught at Postgraduate Level:**

Metal Forming and Metal Casting  
Production System Design and Control  
Metal Cutting Technology  
Advanced Manufacturing Processes

**PhD Supervision:** 01 (Awarded)

01 (Thesis submitted)

03 (Ongoing)

**M. Tech Thesis Supervised:** 11 (Completed)

**Students Innovation projects:**

1. 3D laser engraving machine (Project cost: Rs.19000.00)
2. Semi-automatic parer bag (thunga) machine: (Project cost: Rs. 1500.00) [Patent applied]
3. Semi-automatic raw coconut cutting machine ((Project cost: Rs. 2500.00) [Patent to be applied]
4. Solar dryer for mango pulp (Continuing)

**Industry-Institute Interaction:**

Failure analyses of gear teeth of a major component of Dragline, HEC Ltd. The research scholar is solving the machining issues under my supervision.

**PUBLICATION LIST**

**International Journals**

1. **R. Das**, U. S. Dixit and S. Deb (2010), Effect of die land length and lubrication on the mechanical properties of the extruded products in a multi-hole extrusion process: An experimental study, International Journal of Manufacturing Technology and Industrial Engineering (IJMITE), 1(2), pp. 175–179.
2. **R. Das**, U. S. Dixit and S. Deb (2012), An experimental study on constrained multi-hole extrusion process, Journal of Machining and Forming Technologies, Vol.4, issue 1-2, pp. 141-153.
3. **Ratnakar Das**, U. S. Dixit and S. Deb (2012), Effect of Extrusion Ratio, Die Land Length and Lubrication on Hardness and Surface Roughness in Multi-Hole Extrusion, Journal of Manufacturing Technology Research (JMTR), Vol.4, Issue 1/2, pp.35-48. (**Scopus**)
4. M. K. Sinha, S. Deb, **R. Das** and U. S. Dixit (2009), Theoretical and experimental investigations on multi-hole extrusion process, Materials and Design, 30, pp. 2386-2392. (**SCI**).
5. **R. Das**, A. K. Rout and D. V. N. Lakshmi (2013), Finite Element Simulation of Multi-hole Extrusion Process, International Journal of Mechanical Engineering Research, 3 (6), pp. 480-482.

6. A. K. Rout, **R. Das** and B. C. Routara (2014), FEA analysis during extrusion of polygonal sections from round billet through linearly converging dies using SERR Technique, *International Journal of Current Engineering and Technology*, Special Issue-2 (Feb. 2014), pp. 586-589.
7. Arun Kumar Parida, **Ratnakar Das**, A. K. Sahoo, B. C. Routara (2014), Optimization of cutting parameters for surface roughness in machining of GFRP composites with graphite/fly ash filler. *Procedia Materials Science*, (Elsevier), Vol. 6, pp. 1533 – 1538. **(Scopus)**
8. D. V. N. Lakshmi, T. R. Mishra, **R. Das**, S. S. Mohapatra (2014), Effect of Brown Gas Performance and Emission in a SI Engine, *International Journal of Scientific and Engineering Research*, Volume 4, Issue 12, page 170-173.
9. Dipti Kanta Das, Ashok Kumar Sahoo, **Ratnakar Das**, B. C. Routara (2014), Investigations on hard turning using coated carbide insert: Grey based Taguchi and regression methodology, *Procedia Materials Science*, (Elsevier), Volume 6, page 1351-1358. **(Scopus)**
10. **Ratnakar Das\***, Anindita Sarmah, D. V. N. Lakshmi, A. K. Sood (2014), A Finite Element Analysis on the Effect of Location of holes, Die pockets and Extrusion Speed in Multi-hole Extrusion Process, *Procedia Engineering*, (Elsevier), Volume 97, 2014, Pages 1247-1253,. **(Scopus)**
11. Gazi Anzum Arefi, **Ratnakar Das\***, A. K. Sahoo and B. C. Routara (2017), A study on the effect of machining parameters in turning of lead alloy, *Materials today Proceedings* (Elsevier), 4 (2017), pp. 7562-7572. **(Scopus)**
12. Pradyut Kumar Swain, **Ratnakar Das\***, Ashok Kumar Sahoo (2018), Machining study of Al-SiCp metal matrix nano composite developed by ultrasonic assisted casting process, *International Journal of Mechanical Engineering and Technology (IJMET)* Volume 9, Issue 10, October 2018, pp. 1484–1492. **(Scopus)**
13. Rita Kumari Sahu, **Ratnakar Das\***, Bharat Chandra Routara (2018), Effect of die pockets on the extruded products in Multi-hole Extrusion Process: A finite element simulation study. *IOP Conf. Series: Materials Science and Engineering* 455 (2018) 012020 IOP Publishing doi:10.1088/1757-899X/455/1/012020. **(Scopus)**
14. Umasankar Das, **Ratnakar Das\*** and Vijay Toppo (2018), Wear behaviour study of Friction Stir Welded Dissimilar Metals: AA6101-T6 and AA6351-T6 Aluminium Alloys, *IOP Conf. Series: Materials Science and Engineering* 377 (2018) 012212 doi:10.1088/1757-899X/377/1/012212. **(Scopus)**

15. U. Das, R. Das\*, V. Toppo and S. Muthukumaran (2018), Metallurgical Characterization and Hardness Evaluation of Dissimilar Friction Stir Welded Al Alloy Flat Plates, IOP Conf. Series: Materials Science and Engineering 455 (2018) 012071, **(Scopus)**
16. Pradyut Kumar Swain, Ashok Kumar Sahoo, Ratnakar Das and Payodhar Padhi Development, characterization and machining of Al and SiCp nano particles metal matrix nano-composite, AIP Conf. Proc. 1930, 020057-1–020057-8; <https://doi.org/10.1063/1.5022951>. **(Scopus)**
17. Pradyut Kumar Swain, Ashok Kumar Sahoo, **Ratnakar Das** and Payodhar Padhi (2018) Investigation, evaluation and analysis of SiCp nano particle metal matrix nano composite using a hybrid process, AIP Conference Proceedings 1930, 020056 (2018); doi: 10.1063/1.5022950. **(Scopus)**
18. Pradyut Kumar Swain, **Ratnakar Das**, Ashok Kumar Sahoo, Bikash Naik, Payodhar Padhi (2018) Synthesis and characterization of Al & SiCp nano particles by non-contact ultrasonic assisted method, AIP Conference Proceedings 1966, 020019 (2018). **(Scopus)**
19. Rita Kumari Sahu, **Ratnakar Das\***, B. C. Rourata (2019) Extrusion of circular billet through circular, triangular and square multi-hole die, International Journal of Engineering and Advanced Technology, Volume-8 Issue-6 August 2019. **(Scopus)**.
20. U. Das, **R. Das\*** , V. Toppo and S. Muthukumaran (2019), Experimental Study on Tensile and Bending Behavior of Friction Stir Welded Butt Joints of Dissimilar Aluminum Alloys, Materials Today: Proceedings 18 (2019) 4717–4723. **(Scopus)**
21. Pradyut Kumar Swain, Kasinath Das Mohapatra , **Ratnakar Das**, Ashok Kumar Sahoo and Amlana Panda (2020), Experimental investigation into characterization and machining of Al + SiCp nano-composites using coated carbide tool, Mechanics & Industry 21, 307 (2020) , <https://doi.org/10.1051/meca/2020015>. **(SCI & SCOPUS)**
22. Rita Kumari Sahu, **Ratnakar Das\*** and B.C. Routara (2020), Studies on die designs in multi-hole extrusion process, Materials Today: Proceedings, vol. 26, pp.3043-3047. **(Scopus)**
23. Shambhu Kumar, **Ratnakar Das\***, Sambit Kumar Parida (2020), Water absorption and mechanical properties of sabai yarn in FRP composite, Materials Today: Proceedings, vol. 26, pp. 1610-1615. **(Scopus)**
24. Umasankar Das, **Ratnakar Das\***, Vijay Toppo (2020), Dry sliding wear behavior study on friction stir weld joints of dissimilar aluminum alloys, Materials Today: Proceedings, vol. 26, pp. 1815-1821. **(Scopus)**.

### **International and National Conferences/ Seminars**

1. **Ratnakar Das** and Tarekswar Barik, An experimental study on the burr formation in drilling of aluminum channels of rectangular section, Proceedings of the 5th International and 26th AIMTDR Conference, IIT Guwahati, 12-15 December 2014.
2. **R. Das** and U. S. Dixit, Multi-hole Microextrusion: An Experimental study, National Conference on Manufacturing: A Vision for Future, IIT Guwahati, pp.178-183, 12-13 October, 2013.
3. **Ratnakar Das**, A. K. Sahu and B.C. Routra (2013), An experimental study on the mechanical properties of the extruded products of multi-hole microextrusion, Nirma University International Conference on Engineering (NUiCONE), Gandhinagar, Ahmedabad.
4. **R. Das**, D. V. N. Lakshmi and S. Tripathy, Metal Forming Processes in Automobile Industry: An Overview, Proceedings of the 1<sup>st</sup> International Symposium on Advances in Automotive Technology, pp. 95–98, KIIT University, Bhubaneswar, Odisha, India, January 11–12, 2013.
5. D. V. N. Lakshmi and **R. Das**, Metal Hydride Sorption System for Automotive Cooling, Proceedings of the 1<sup>st</sup> International Symposium on Advances in Automotive Technology, pp. 99–103, KIIT University, Bhubaneswar, Odisha, India, January 11–12, 2013.
6. **R. Das**, U. S. Dixit and S. Deb, Effect of die land length and lubrication on the mechanical properties of the extruded products in a multi-hole extrusion process: An experimental study, Proceedings of the 4<sup>th</sup> International Conference on Advances in Mechanical Engineering (ICAME), pp.418–422, S. V. National Institute of Technology, Surat-395007, Gujarat, India, September 23–25, 2010.
7. **R. Das**, U. S. Dixit and S. Deb, An experimental study on the effect of lubrication, die land length and vibration in multi-hole extrusion process, Proceedings of the 2<sup>nd</sup> International Conference on Production and Industrial Engineering (CPIE-2010), pp. 84–90, NIT Jalandhar, India, December 3–5, 2010.
8. **Ratnakar Das**, U. S. Dixit and Sankha Deb, Effect of extrusion Ratio, die land length and lubrication on hardness and surface roughness in multi-hole extrusion, Proceedings of the

- 3<sup>rd</sup> International and 24<sup>th</sup> AIMTDR Conference, pp. 971–976, Andhra University, Vishakapatnam, India, December 13–15, 2010.
9. **Ratnakar Das** and U. S. Dixit, Effect of Die Pockets in Multi-Hole Extrusion Process, Proceedings of the International Conference on Computational Methods in Manufacturing (ICMM2011), pp. 107–114, Indian Institute of Technology Guwahati, Guwahati, India, December 15–16, 2011.
  10. **R. Das** and U. S. Dixit, A study on Multi-hole extrusion Process, Proceedings of the National Seminar Emerging Technologies in Mechanical Engineering (ETME-2011), pp. 12–20, C. V. Raman College of Engineering, Bhubaneswar, India, January 21–22, 2011.
  11. N. S. Das, **Ratnakar Das**, H. Jordar, A recent study on chip control, Proceedings of the National Seminar on Advances in Manufacturing Technology of Metals and Alloys, pp. 01–09, NMIET, Bhubaneswar, India, January 13, 2007.
  12. **R. Das**, A study on the effect of EDM process parameters on the surface topography and microstructural transformation, Proceedings of the national conference on Recent Advances in Manufacturing Technology (RAMT'06), pp. 82–83, Vellamaal Engineering College, Chennai, India, February 3, 2006.
  13. **R. Das** and S. K. Sarangi, Condition monitoring in Oil Exploration, Proceedings of the national seminar on Condition Monitoring and their Cost Effectiveness, pp. 51–54, C. V. Raman College of Engineering, Bhubaneswar, India, October 15–16, 2004.

#### ***Book Chapters:***

1. U. S. Dixit and **R. Das**, “Microextrusion”, Micromanufacturing Processes, Published by Taylor & Francis Group, CRC Press, UK, ISBN: 1439852901 / 9781439852903. Page 263–282.

#### ***Short Term Course Lecture Note:***

1. Sankha Deb and **Ratnakar Das**, “Laser Micromachining”, QIP Short Term Course on Introduction to Micro-manufacturing Technologies, pp. 51–56, Department of Mechanical Engineering, IIT Guwahati, February 24–28, 2008.