

Curriculum Vitae

A. Personal Details

Name	Anoop Kumar Sood
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Date of Birth	26 August 1974
Nationality	Indian
Marital Status	Married
Present Employer	Department of Manufacturing Engineering, National Institute of Foundry and Forge Technology, Hatia-834003, Ranchi, Jharkhand, India.
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B. Professional Qualifications

S.No.	Degree	Division
1	B.Tech. (Mechanical Engineering)	First
2	M.Tech. (Mechanical Engineering Design)	First with honors
3	Ph. D. (Mechanical Engineering)	Completed

C. Membership of Professional Bodies

1. International Society on Multiple Criteria Decision Making
2. International Association of Engineers
3. International Association of Computer Science and Information Technology
4. Indian Foundry organization

D. Administrative Responsibility (At present, NIFFT, Ranchi)

1. Head, Department of Manufacturing Engineering
2. Chairman, Central Computer Centre
3. Chairman, House Allotment Committee

E. Ph. D. Thesis Supervision

S.No.	Student	Topic	Status
1	Md. Azhar Equbal	An Investigation on the Feasibility of FDM Process for EDM Electrode Manufacturing	Awarded 2018

F. Research Guidance at Post Graduate Level (M. Tech.)

S.No.	Student	Topic	Year of submission
1.	MR. PRASHANT SHEKHAR	Optimization of process parameters of rapid prototyping component	2008
2.	MD. ASIF EQUBAL	Study of wear characteristic of fused deposition modelling processed ABS part.	2010
3.	MR. A.P.R. SRINIVAS	Surface roughness improvement of FDM processed abs part.	2010

4.	MR. PRAVEEN KUMAR	A study on machine loading problem in flexible manufacturing system.	2011
5.	MD. RAZAULLAH KHAN	Evolutionary approach for flexible job shop scheduling.	2012
6.	MD. MUSHEER AHMED	Magneto-rheological technique to reduce the vibrations in a helicopter passenger seat.	2012
7.	Mr. N.K. DIXIT	Metallization of ABS part fabricated using Fused Deposition Modeling	2013
8.	Ms. Richa Awasthi	EDM Optimization	2014
9.	Mr. Mohammad Shamim	Optimization of Cutting Parameters for Glass Fiber Composite	2014
10.	Ms. Sunita Nayak	Multi-Objective Genetic Algorithm for Flexible Job Shop Scheduling	2015
11.	Mr. Nagendra Deshmukh	Flexible Job Shop Scheduling Using Bacteria Foraging Optimization Algorithm	2015
12.	Mr. Tej Pratap Singh	Integration of Process Planning and Job Shop Scheduling	2015
13.	Mr. Shivam Sen	Cutting Parameter Optimization for Machining of Composite Material	2016
14.	Mr. Ankush Kalia	Quantum Evolutionary Algorithm for Multi-Objective Optimization of EDM Process Parameters	2016
15.	Mr. Karmuhilan M.	Intelligent Process Model for Bead Geometry Prediction in WAAM	2017
16.	Ms. Sonali Acharya	Study of the Effect of Various Electrode Geometry and Material in Electrical Discharge Machining	2017
17.	Mr. Shubham Kumar Jaiswal	Determination of optimum part orientation of part build through rapid prototyping	2017
18.	Mr. Shubham Sinha	2D Finite Element Based Simulation of Laser Metal Additive Manufacturing	2018

19	Mr. Nitesh Kumar	Process Determination of Part Build Orientation in Additive Manufacturing Process by Minimizing Volumetric Error and Support Structure Requirement.	2018
20	Mr. Amiya Ranjan Patra	Study on the influence of process parameters on the melt pool dimension and temperature in the melt pool for laser powder bed fusion process.	2019
21	Mr. Nitin Kumar	Influence of laser power, scanning pattern and scanning velocity on peak temperature in powder bed fusion process.	2019

G. Sponsored Project

1. IE-RDC Grant, Serial no. RD2011632, project on Magneto-Rheological Technique to reduce the vibrations in a helicopter passenger seat.

H. Chapters Contributed in Books

1. Azhar Equbal, Md. Asif Equbal Md. Israr Equbal and Anoop Kumar Sood, "Multi-Criterion Decision Method for Roughness Optimization of Fused Deposition Modelled Parts" Additive Manufacturing Technologies From an Optimization Perspective. 2019: DOI: 10.4018/978-1-5225-9167-2.ch012.
2. Azhar Equbal, Md. Asif Equbal Md. Israr Equbal and Anoop Kumar Sood, "An Insight on Current and Imminent Research Issues in EDM", Non-Conventional Machining in Modern Manufacturing Systems, 2019: DOI: 10.4018/978-1-5225-6161-3.ch002

List of publications in international journals

1. **A. K. Sood**, R.K. Ohdar and S.S. Mahapatra, "Improving Dimensional Accuracy of Fused Deposition Modelling Processed Part Using Grey Taguchi Method," *Materials and Design*, Vol 30, 2009, Pp. 4243–4252.

2. S. K. Panda, S. K. Padhee, **A. K. Sood** and S. S. Mahapatra, "Optimization of Fused Deposition Modelling (FDM) Process Parameters Using Bacterial Foraging Technique," *Intelligent Information Management*, Vol. 1, 2009, Pp. 89-97.
3. **A. K. Sood**, R.K. Ohdar and S.S. Mahapatra, "Parametric Appraisal Of Mechanical Property of Fused Deposition Modelling Processed Parts," *Materials And Design*, Vol. 31, 2010, Pp. 287-295.
4. **A. K. Sood**, R.K. Ohdar and S.S. Mahapatra, "Parametric Appraisal of Fused Deposition Modelling Process Using The Grey Taguchi Method," *Proceedings of The Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, Vol. 223, 2010, Pp. 135-145.
5. **A. K. Sood**, A. Equbal, V. Toppo, R. K. Ohdar and S.S. Mahapatra, "Prediction and Analysis of Sliding Wear Performance of Fused Deposition Modeling (FDM) Processed ABS Plastic Parts," *Proceedings of The Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*, Vol. 224, 2010, Pp. 1261-1271.
6. **A. K. Sood**, A. Equbal, R. K. Ohdar and S.S. Mahapatra, "Prediction of Dimensional Accuracy In Fused Deposition Modelling: A Fuzzy Logic Approach," *International Journal of Productivity and Quality Management*, Vol. 7(1), 2011, Pp. 22-43.
7. **A. K. Sood**, R.K. Ohdar and S.S. Mahapatra, "Weighted Principal Component Approach For Improving Surface Finish of ABS Plastic Parts Built Through Fused Deposition Modelling (FDM) Process," *International Journal of Rapid Manufacturing*, Vol. 2 (1/2), 2011, Pp. 4-27.
8. **A. K. Sood**, R.K. Ohdar and S.S. Mahapatra, "Optimization Of FDM Process Parameters," *International Journal of Applied Engineering Research*, Vol. 6 (5), 2011, Pp. 871-877.
9. R. K. Sahu, S.S. Mahapatra and **A. K. Sood**, "Improvement in Dimensional Accuracy of Fdm Built Parts Using Fuzzy Logic," *International Journal of Applied Engineering Research*, Vol. 6 (5), 2011, Pp. 879-889.
10. **A. K. Sood**, S.S. Mahapatra, Vedansh Chaturvedi and Saurav Datta, "Optimization of Process Parameters in Fused Deposition Modelling Using

- Weighted Principal Component Analysis,” *Journal of Advanced Manufacturing Systems*, Vol. 10 (2), 2011, pp. 241–259.
11. **A. K. Sood**, R.K. Ohdar and S.S. Mahapatra, “Experimental Investigation and Empirical Modelling of FDM Process for Compressive Strength Improvement,” *Journal of Advanced Research*, Vol. 3, 2012, pp. 81-90.
 12. **A. K. Sood**, S.S.Mahapatra, “Bayesian Regularization-Based Levenberg–Marquardt Neural Model Combined With BFOA For Improving Surface Finish of FDM Processed Part,” *International Journal of Advance Manufacturing Technolgy*, Vol. 60 (9-12), 2012, pp. 1223-1235.
 13. **A. K. Sood**, A. Equbal, R. K. Ohdar, V. Toppo, and S.S. Mahapatra, “An Investigation on Sliding Wear of FDM Built Parts,” *CIRP Journal of Manufacturing Science and Technology*, Vol. 5 (1), 2012, pp. 48-54.
 14. **A. K. Sood**, R.K. Ohdar and S.S. Mahapatra, “Experimental Investigation on Wear of FDM Processed Part”, *Advanced Materials Research*, Vol. 445, 2012, pp 883-888.
 15. M Sivadasan, **A. K. Sood** and N. K. Singh, “Investment Casting-Rapid Tooling Approach”, *International Journal of Mechanical and Industrial Engineering*, Vol. 1 (4), 2012, pp. 99-103.
 16. Azhar Equbal, Nitesh Kumar Dixit, **A. K. Sood** “Rapid Prototyping Application in Manufacturing of EDM Electrode”, *International Journal of Scientific & Engineering Research*, Vol. 4 (8), 2013, pp.
 17. Azhar Equbal, Nitesh Kumar Dixit, **A. K. Sood** “Electroless Plating of Plastic”, *International Journal of Scientific & Engineering Research*, Vol. 4 (8), 2013, pp.
 18. Ranjeet Kumar Sahu, S.S. Mahapatra, **A. K. Sood** “A Study on Dimensional Accuracy of Fused Deposition Modeling (FDM) Processed Parts using Fuzzy Logic”, *Journal for Manufacturing Science and Production*, Vol. 13 (3), pp. 183-197.
 19. Azhar Equbal and **A. K. Sood** “Problems and Challenges in EDM Electrode Fabrication using RP: A Critical Review”, *International Journal of Mechanical Engineering and Research*, Vol 3, Number 4 (2013), pp. 361-368.

20. Azhar Equbal and **A.K. Sood**, "Metallic Finishing of RP parts", *Technology Letters*, Vol. 1, (2014), pp. 11-15.
21. Azhar Equbal, Asif Equbal and **A.K. Sood**, "Metallization on FDM processed parts using electroless procedure", *Procedia of Material Science*, Vol. 6, (2014), pp. 1196-1206.
22. Azhar Equbal and **A.K. Sood**, "Electrical Discharge Machining: An Overview on various areas of research", *Journal of Manufacturing and Industrial Engineering*, Vol. 13 (1-2), 2014,
23. Azhar Equbal and **A. K. Sood**, Electroless plating of copper on different shaped ABS parts: A comparison, *Advanced Materials Manufacturing & Characterization*, Vol. 4(1), (2014), pp. 32-41.
24. Azhar Equbal and **A. K. Sood**, "Metallization on FDM Parts Using the Chemical Deposition Technique," *Coatings*, Vol. 4, (2014), pp. 574-576.
25. Azhar Equbal, Nitesh Kumar Dixit and **A.K. Sood**, "Electroless Metalization of ABS plastic: A comparative study", *International Journal of Rapid Manufacturing*, Vol. 5 (3-4), (2015), pp. 255-275.
26. Azhar Equbal and **A.K. Sood**, "Investigation of Metallization of FDM build ABS part using electroless deposition method", *Journal of Manufacturing Processes*, Vol. 19, (2015), pp. 22-31.
27. Azhar Equbal, M. Shamim and **A.K. Sood**, "Rapid Tooling: A major Shift in Tooling Practice", *Journal of Manufacturing and Industrial Engineering*, Vol. 14 (3-4), 2015,
28. Shivam Sen and **A.K. Sood**, "Optimization of Machine Parameter of GFRP using Interval-valued Fuzzy TOPSIS", *Journal of Basic and Applied Engineering Research*, Vol. 2(15), (2015), 1297-1299.
29. Md. Equbal, R.K. Ohdar, Azhar Equbal and **A.K. Sood**, "Grey based Taguchi Method for optimization of hot forging of connecting rod", *International Journal of Manufacturing Research*, Vol. 11 (1), (2016), pp. 89-109.
30. Ankush Kalia and **A.K. Sood**, "Multi Objective QEA for optimization of EDM process parameters", *International Journal of Advance Studies in Computer Science and Engineering*, vol. 5 (6), (2016).

31. Md. Equbal and **A.K. Sood**, "Investigation of material removal rate of EDM process: A response surface methodology approach", *International Journal of Mechanical and Mechatronics Engineering*, vol. 11 (4), (2017), pp. 856-861.
32. Saroj Kumar Padhi, Ranjeet Kumar Sahu, **A.K. Sood**, S.S. Mahapatra et al., "Optimization of fused deposition modelling process parameters using fuzzy inference system coupled with Taguchi philosophy", *Advances in Manufacturing*, vol. 5 (3), (2017), pp. 231-242.
33. Azhar Equbal, Abdul Razzaq Ansari, Md. Asif Equbal and **A.K. Sood**, "Optimization of process parameters of FDM part for minimizing its dimensional inaccuracy," *International Journal of Mechanical and Production Engineering Research and Development*, Vol. 7(2), (2017), pp. 57-66.
34. Azhar Equbal, Md Israr Equbal, Md Asif Equbal and **A.K. Sood**, "A Comparative Study on Electroplating of FDM Parts," *International Journal of Technology*, Vol. 8 (5), (2017), pp. 930- 938.
35. M. Karmuhilan, **A.K. Sood**, "Intelligent process model for bead geometry prediction in WAAM," *Materials Today: Proceedings*, Vol. 5(11), 2018, pp 24005-24013.
36. Azhar Equbal, Md. Israr Equbal, **A.K. Sood**, "PCA-based desirability method for dimensional improvement of part extruded by fused deposition modelling technology," *Progress in Additive Manufacturing* <https://doi.org/10.1007/s40964-018-00072-4>.
37. A Equbal, MI Equbal, **AK Sood**, "An investigation on the feasibility of fused deposition modelling process in EDM electrode manufacturing", *CIRP Journal of Manufacturing Science and Technology*, Vol 26, 2019, pp. 10-25.

List of Publications in Conferences

1. **A. K. Sood**, Rajeev Gupta, "Adaptive Slicing of Point Cloud Data to Minimize the Volumetric Error in Rapid Prototyping", *RTMNR-2006*, April 15-16, 2006, Rourkela, India.
2. **A. K. Sood**, Rajeev Gupta, "Point Cloud Slicing For Layer Generation in Rapid Prototyping", *RDFTME-2006*, November 03-04, 2006, Hamirpur, Himachal Pradesh, India.

3. **A.K. Sood**, R.K. Ohdar, “Rapid Tooling Technologies: A Review”, 5th Isme International Conference on Advances in Mechanical Engineering, March 18-20, 2008, Bhopal, India
4. S. S. Mahapatra, **A.K. Sood**, S.K. Patel and S. Sahu, “Optimization of Process Parameters in Fused Deposition Modeling Using Weighted Principal Component Analysis,” *The 3rd International Conference on Global Interdependence and Decision Sciences*, December 28-30, 2009, Hyderabad, India, 2009.
5. **A. K. Sood**, R.K. Ohdar and S.S. Mahapatra, “Grey Taguchi Method For Improving Dimensional Accuracy of FDM Process,” *AIMS International Conference on Value-Based Management*, Haridwar, August 11-13, 2010, Pp. 608-613.
6. R. K. Sahu, S.S. Mahapatra and **A. K. Sood**, “Improving Dimensional Accuracy of Fused Deposition Modelling (FDM) Processed Part Using Desirability Function Approach,” *3rd International and 24th AIMTDR-2010*, 13-15 December, 2010, Visakhapatnam, Beela Satyanarayana Et Al. (Eds), Pages 247-252.
7. **A. K. Sood**, R.K. Ohdar And S.S. Mahapatra, “Optimization of FDM Process Parameters”, *National Conference of Design and Manufacturing (NACONDM-2011)*, 27-28 May, 2011, Chennai, India.
8. **A. K. Sood**, R.K. Ohdar And S.S. Mahapatra, “Experimental Investigation on Wear of FDM Processed Part”, *14th International Conference on Advances in Materials and Processing Technologies*, AMPT 2011, 13-16 July 2011, Istanbul, Turkey.
9. M Sivadasan, **A. K. Sood** And N. K. Singh, “Applicability Of FDM Process in Investment Casting”, *National Conference on Operations and Manufacturing Excellence*, 2012, 5-6 March 2012, Nagpur.
10. Md. I. Equbal, R.K. Ohdar, **A.K. Sood**, “Optimum Forging Preform Shape Design Using Deform and Taguchi Method”, *National Seminar on Advancements in Manufacturing - Vision 2020*, 2012, 25-26 May, Ranchi.
11. M Sivadasan, **A. K. Sood** and N. K. Singh, “Use of Fused Deposition Modelling Process in Investment Precision Casting and Risk of Using Selective Laser

- Sintering Process”, *International Conference on Additive Manufacturing Technologies AM-2012*, 27-28 August, 2012, Bangalore.
12. M Sivadasan, **A. K. Sood** and N. K. Singh, “Use of Fused Deposition Modelling Process in Investment Precision Casting - A Viable Rapid Tooling”, *International Conference on Engineering Technology and Management*, 7-8 September 2012, Tirupati.
 13. Md. I. Equbal, **A.K. Sood**, and R.K. Ohdar, “Taguchi Based Simulation Approach For Optimization of Closed Die Forging”, *International Conference on Engineering Technology and Management*, 7-8 September 2012, Tirupati.
 14. Md. I. Equbal, **A.K. Sood** and Aarif Hussian, “Die Stress Optimization Using Quantum Behave Particle Swarm Optimization”, *Thermo-Mechanical Simulation And Processing Of Steels (SIMPRO-12)*, 11-13 December 2012, Ranchi.
 15. Azhar Equbal, Nitesh Kumar Dixit and **A.K. Sood**, “Rapid Prototyping Application in Manufacturing of Electrical Discharge Machining”, *International Conference on Global Innovation in Technology and Science*, 04-16 April, 2013, Kottayam, Kerala.
 16. Azhar Equbal, Nitesh Kumar Dixit and **A.K. Sood**, “Electroless Plating on Plastics”, *International Conference on Global Innovation in Technology and Science*, 04-16 April, 2013, Kottayam, Kerala, India.
 17. Azhar Equbal, Md. Shamim and **A. K. Sood**, “Electroless plating of copper on different shaped ABS parts: A comparison”, *3rd International Conference on Advances in Tribology (ICAT)*, 21st - 24th February, 2014, NIT Calicut, Kerala, India.
 18. Azhar Equbal, Asif Equbal and **A. K. Sood**, “Metallization on FDM processed parts using electroless procedure”, *International Conference on Material Processing and Characterization*, 9th - 10th March, 2014, GRIET, Hyderabad, India.
 19. Azhar Equbal, Asif Equbal, Md. Shamim and **A. K. Sood**, “Electroplating of FDM parts: A comparison via two different routes”, *International Conference on Materials Science and Technology*, 1st - 4th March, 2016, University of Delhi, Delhi, India.

20. Azhar Equbal, Asif Equbal and **A. K. Sood**, “Analysis of material removal rate of electric discharge machining (EDM) using response surface methodology”, *National seminar on Convergence of Science and Technology (NSCST)*, 19th - 20th Feb, 2016, C.I.T Tatisilwai, Ranchi, India.
21. Mohammad Shamim, Azhar Equbal, P.V Sivaprasad and **A. K. Sood**, “Optimization of machining parameters on turning of GFRP composites by a hybrid algorithm using artificial neural network and genetic algorithm”, *International Conference on Advances in Materials and Manufacturing*, 19th - 21st Jan 2017, NIFFT, Hatia, Ranchi, India.
22. Azhar Equbal and **A. K. Sood**, “Parametric optimization of dimensional accuracy of FDM processed ABS part”, *International Conference on Advances in Materials and Manufacturing*, 19th - 21st Jan 2017, NIFFT, Hatia, Ranchi, India.
23. Azhar Equbal, Md Asif Equbal, Parwez Alam, Md Israr Equbal and **A.K. Sood**, An Investigation on material removal rate of EDM process: A Response surface methodology approach, Second international conference on mechanical and manufacturing engineering, 6th - 7th April, 2017, Enathur, Kanchipuram, India.
24. Azhar Equbal, Md. Israr Equbal, Pranav Ravindrannair, and **A.K. Sood**, “Thick film copper deposition on FDM processed ABS parts by using Aluminum Charcoal deposition process”, *National Conference on Advances in Mechanical Engineering and Nanotechnology (NCAMENT2018)*, 29-30 June, 2018, MED, University College of Engineering, Osmania University, Hyderabad.
25. Azhar Equbal, Md. A. Equbal, R. Pranav, Md. I. Equbal and **A. K. Sood**, 2nd International Conference on Advancements in Aeromechanical Materials for Manufacturing (ICAAMM 2018), 13th-14th July 2018 MLR Institute of Technology, Hyderabad.
26. Azhar Equbal, **A. K. Sood**, “Feasibility of FDM-Electroplating Process for EDM Electrode Fabrication”, IMMT2019, 21-23November, BITS Pilani Dubai Campus, Dubai.

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