

Dr N Venkata Reddy

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Research Interests

- ✓ Predictive modeling for Digital Fabrication (including Additive Manufacturing)
- ✓ Analysis (Numerical as well as Experimental) of Manufacturing processes
- ✓ Development of Integrated Product and Process Design Systems (IPPDS) for various manufacturing processes including Additive/Layered Manufacturing.
- ✓ Design and Development of Rapid response and Resource Saving Manufacturing Processes
- ✓ Development and Analysis of Hybrid Manufacturing Processes

Experience

2012 – Till Date	Professor	Dept. Mechanical and Aerospace Engg. IIT Hyderabad
2010 – 2013 <small>(On lien @ IIT Hyderabad during Aug 2012 – July 2013)</small>	Professor	Dept. Mechanical Engg, IIT Kanpur
2006 – 2009	Associate Professor	Dept. Mechanical Engg, IIT Kanpur
1999 – 2005	Assistant Professor	Dept. Mechanical Engg, IIT Kanpur
Sep 1997 – 1998	Visiting Faculty	Dept. Mechanical Engg, IIT Bombay
Feb 1997 – Aug 1997	Asst. Manager	TATA STEEL, Jamshedpur

Education

Ph.D. Mechanical Engineering, *Indian Institute of Technology Kanpur*, 1998
M.Tech. Mechanical Engineering, *Indian Institute of Technology Kanpur*, 1992
B.Tech. Mechanical Engineering, *Nagarjuna University, India*, 1990

Patents/Publications/Books

Patents (Granted)

1. Tool for Enhanced Accuracy in Double Sided Incremental Forming, United States Patent, Application number: US11484932B2, (with Boeing).
2. System and Processes for Sheet Metal Processing, 2023, Japan Patent number: JP7375031B2 (with Tata Steel).
3. Tool for Double-Sided Incremental Forming and Method of Using the Tool, 2024, European patent number: EP3858511B1 (with Boeing).
4. A System for a Sheet Metal Working and a Process Thereof, 2024, Indian Patent Number: 505884. (with Tata Steel)

Patents (Applied/Published)

5. A Deformation Aided Direct Energy Deposition (DED) Additive Manufacturing Method and System Thereof, Indian Patent, Application Number: 201941016062.
6. A Method for Reduction of Residual Stresses in Additively Manufactured Components through Electro-pulsing, Indian Patent, Application Number: 202241020827.
7. Method and System Thereof to Fabricate Parts Using Metal Additive Manufacturing and Double Sided Incremental Forming, Indian Patent, Application Number: 202241046376.
8. System for Roll Forming and Process Thereof, Indian Patent, Application Number 202331022121 (With Tata Steel)
9. Method and System for a Reconfigurable Setup for Tailored Thermal Control During a Metal Additive Manufacturing, Indian Patent, Application Number: 202441001687
10. A Multiple Tool Assembly to Improve Productivity and Energy Efficiency During Double-Sided Incremental Forming, Indian Patent, Application Number: 202441022735

Books/Proceedings/Book Chapters

1. Proceedings of National Symposium on Manufacturing Engineering in Twenty First Century, March 2-3, 2001, IIT Kanpur, Edited by: P. C. Pandey, N. V. Reddy and V. Raghuram.
2. Fundamentals of Design and Manufacturing, G. K. Lal, Vijay Gupta and N. V. Reddy, Narosa Publishers, New Delhi (2005) (reprint: 2006, 2007, 2008, 2009, 2010, 2011, 2013, 2014,2015).
3. Introduction to Engineering Plasticity, G K Lal, N. V. Reddy, Narosa Publishers, New Delhi (2009).
4. Modelling Techniques for Metal Forming, G K Lal, N. V. Reddy, Narosa Publishers, New Delhi (2011).

5. Incremental Sheet Metal Forming, N. V. Reddy, R Lingam, J Cao, Handbook of Manufacturing Engineering and Technology, Springer, 2015.
6. Materials in Metal Forming, S Idapalapati, S Xu, N. V. Reddy, F Pahlevani, N Srikanth, K R Narayanan, M Zarinejad, Handbook of Manufacturing Engineering and Technology, Springer, 2015

Papers in Refereed Journals

1. Reddy, N. V., Dixit, P. M., and Lal, G. K., 1995, Die Design for Axisymmetric Extrusion, *Journal of Materials Processing Technology*, V55, 331-339.
2. Reddy, N. V., Dixit, P. M., and Lal, G. K., 1996, Central Bursting and Optimal Die Profile for Axisymmetric Extrusion, *ASME Journal of Manufacturing Science and Engineering* (formerly Journal of Engineering for Industry), V118, 579-584.
3. Reddy, N. V., Sethuraman, R., and Lal, G. K., 1996, Upper Bound and Finite Element Analysis of Axisymmetric Hot Extrusion, *Journal of Materials Processing Technology*, V57, 14-22.
4. Reddy, N. V., Dixit, P. M., and Lal, G. K., 1996, Analysis of Axisymmetric Tube Extrusion, *International Journal of Machine Tools and Manufacture*, V36, 1253-1267.
5. Reddy, N. V., Dixit, P. M., and Lal, G. K., 1997, Die Design for Axisymmetric Hot Extrusion, *International Journal of Machine Tools and Manufacture*, V37, 1635-1650.
6. Reddy, N. V., Dixit, P. M., and Lal, G. K., 2000, Ductile Fracture Criteria and Its Prediction in Axisymmetric Drawing, *International Journal of Machine Tools & Manufacture*, V40, 95-111.
7. Reddy, N. V., and Suryanarayana, G, 2001., A Set-up Model for Tandem Cold Rolling Mills, *Journal of Materials Processing Technology*, V116, 269-277.
8. Pandey, P. M., Reddy, N. V., and Dhande, S. G., 2003, Real Time Adaptive Slicing for Fused Deposition Modelling, *International Journal of Machine Tools and Manufacture*, V41, 61-71.
9. Pandey, P. M., Reddy, N. V., and Dhande, S. G., 2003, Improvement of Surface Finish by Staircase Machining in Fused Deposition Modelling, *Journal of Materials Processing Technology*, V132, 310-318.
10. Sonis, P., Reddy, N. V., and Lal, G. K., 2003, On Multistage Deep Drawing of Axisymmetric Components, *ASME Journal of Manufacturing Science and Engineering*, V125, 352-362.
11. Gupta, S., Reddy N. V., and Dixit, P. M., 2003, Ductile Fracture Prediction in Axisymmetric Upsetting using Continuum Damage Mechanics, *Journal of Materials Processing Technology*, V141, 256-265.
12. Pandey, P. M., Reddy, N. V., and Dhande, S. G., 2003, Slicing Procedures in Layered Manufacturing: A Review, *Rapid Prototyping Journal*, V9, 274-288.
13. Trimurthulu, K., Pandey, P. M., and Reddy, N. V., 2004, Optimum Part Deposition Orientation in Fused Deposition Modeling, *International Journal of Machine Tools and Manufacture*, V44, 585-594.

14. Pandey, P.M., Trimurthulu, K., and Reddy, N. V., 2004, Optimal Part Deposition Orientation in FDM by using a Multi-Criteria Genetic Algorithm, *International Journal of Production Research*, V42, 4069-4089.
15. Rajak, A., and Reddy, N. V., 2005, Prediction of Internal Defects in Plane Strain Rolling, *Journal of Materials Processing Technology*, V159, 409-417.
16. Pandey, P. M., Reddy, N. V., and Dhande, S. G., 2006, Virtual Hybrid-FDM System to Enhance Surface Finish, *Virtual and Physical Prototyping*, V1, 101-116.
17. Tuli, M., Reddy, N. V., Saxena, A., 2006, Constrained Shape Modification of B-Spline Curves, *Computer Aided Design and Applications*, V3, 437-446.
18. Pandey, P. M., Reddy, N. V., and Dhande, S. G., 2007, Part Deposition Orientation Studies in Layered Manufacturing, *Journal of Materials Processing Technology*, V185, 125-131.
19. Deep, K. S., Reddy, N. V., Agrawal, A., and Ramkumar, J., 2007, A Mathematical Model for Determination of Limiting Blank Holding Force and Cavity Pressure in Hydromechanical Deep Drawing, *IMEchE Part – B Journal of Manufacture*, V221, 155 – 162.
20. Reddy, B. V., Reddy, N. V., and Ghosh, A., 2007, Fused Deposition Modelling using Direct Extrusion, *Virtual and Physical Prototyping*, V2, 51-60.
21. Agrawal, A., Reddy, N. V., and Dixit, P. M., 2007, Determination of Optimum Process Parameters for Wrinkle Free Products in Deep Drawing Process, *Journal of Materials Processing Technology*, V191, 51 – 54.
22. Bansal, S., Malik, P., Reddy, N. V., and Saxena, A., 2008, Modular Fixture Planning for Minimum 3D Tolerances using Neutral Part Data Exchange Format, *International Journal of Production Research*, V46, 1455 -1476.
23. Agrawal, A., Reddy, N. V., and Dixit, P. M., 2008, Optimal Blank Shape Prediction Considering Sheet Thickness Variation: An Upper Bound Approach, *Journal of Materials Processing Technology*, V196, 249-258.
24. Bansal, S., Nagarajan, S., and Reddy, N. V., 2008, An Integrated Fixture Planning System for Minimum Tolerances, *International Journal of Advanced Manufacturing Technology*, V38, 501-513.
25. Chakraborty, P., and Reddy, N. V., 2009, Automatic Determination of Parting Directions, Parting Lines and Surfaces for Two Piece Permanent Molds, *Journal of Materials Processing Technology*, V209, 2464-2476.
26. Nagarajan, S., and Reddy, N. V., 2010, STEP-based Automatic System for Recognizing Design and Manufacturing Features, *International Journal of Production Research*, V48, 117-144.
27. Bansal, S., and Reddy, N. V., 2010, Automatic Setup Planning System using a Neutral Part Data Exchange Format, *International Journal of Computer Aided Engineering and Technology*, V3, 107-125.
28. Bassi, R., Reddy, N. V., and Bedi, S., 2010, Automatic Recognition of Features for Side Core Design in Two Piece Permanent Molds, *International Journal of Advanced Manufacturing Technology*, V50, 421-439.
29. Malhotra, R., Reddy, N. V., and Cao, J., 2010, Automatic 3D spiral path generation for single point incremental forming, *ASME Journal of Manufacturing Science and Engineering*, V132, 061003:1-10.

30. Rohith, U., Reddy, N. V., and Dixit, P. M., 2011, An Analytical Approach for the Prediction of Forming Limit Curves subjected to Combined Strain Paths, *International Journal of Mechanical Sciences*, V53, 365-373.
31. Malhotra, R., Bhattacharya, A., Kumar, A., Reddy, N. V., and Cao, J., 2011, A New Methodology for Multi-Pass Single Point Incremental Forming with Mixed Tool Paths, *CIRP Annals – Manufacturing Technology*, V60(1), 323-326.
32. Agrawal, A., Reddy, N.V., and Dixit, P.M., 2011, Prediction of Wrinkling and Determination of Minimum Blankholding Pressure in Multi-Stage Deep Drawing, *ASME Journal of Manufacturing Science and Engineering*, V133, 061023:1-8.
33. Bhattacharya, A., Maneesh, K., Reddy, N.V., and Cao, J., 2011, Formability and Surface Finish Studies on Single Point Incremental Forming, *ASME Journal of Manufacturing Science and Engineering*, V133, 1-8.
34. Malhotra, R., Cao, J., Ren, F., Kiridena, V., Xia, Z. C., and Reddy, N.V., 2011, Improvement of Geometric Accuracy in Incremental Forming by using a Squeezing Toolpath Strategy with Two Forming Tools, *ASME Journal of Manufacturing Science and Engineering*, V133, 1-10.
35. Surti, A., and Reddy, N.V., 2012, A Non-Discretized Approach to Visibility Analysis for Automatic Mould Feature Recognition using STEP Part Model, *Journal of Advanced Manufacturing Systems*, V11,1-16
36. Xu, D., Malhotra, R., Reddy, N.V., Chen, J., and Cao, J., 2012, Analytical prediction of stepped feature generation in multi-pass single point incremental forming, *Journal of Manufacturing Processes (SME Journal)*, V14, 487-494.
37. M Beltran, R Malhotra, A. J. Nelson, A Bhattacharya, N. V. Reddy and Jian Cao, 2013, Experimental Study of Failure Modes and Scaling Effects in Micro-Incremental Forming, *ASME Journal of Micro and Nano-Manufacturing*, 031005: 1-15.
38. J Asghar, R Lingam, E Shibin and NV Reddy, 2014, Tool path design for enhancement of accuracy in single-point incremental forming, *Proc IMechE Part B: Journal of Engineering Manufacture*, V228, 1027-1035.
39. Lingam, R., Bansal, A., and Reddy N.V., 2015, Analytical Prediction of Formed Geometry in Multi-Stage Single Point Incremental Forming, *International Journal Material Forming*, V9, 395–404.
40. Lingam, R., Srivastava, A., and Reddy, N V., 2016, Deflection Compensations for Tool Path to Enhance Accuracy during Double Sided Incremental Forming, *ASME Journal of Manufacturing Science and Engineering*, V138, 091008
41. Lingam R., Belk J., Om Prakash and N V Reddy, 2017, Automatic Feature Recognition and Tool Path Strategies for Enhancing Accuracy in Double Sided Incremental Forming", *International Journal of Advanced Manufacturing Technology*, V88, 1639-1655.
42. Bansal, A., Lingam, R., Yadav, S K., and Reddy N V., 2017, Prediction of Forming Forces in Single Point Incremental Forming, *Journal of Manufacturing Processes (SME Journal)*, V28, 486-493.
43. Lingam R., Bansal A., Om Prakash and Reddy NV., 2018, Mechanics Based Integrated Product and Process Design for Incremental Forming, *ASME Journal of Manufacturing Science and Engineering*, V140, 021016.

44. R Lingam, P Konka, K Kalathiya, S Shaik and N V Reddy, 2018, Analysis of Anisotropic Effects in Single Point Incremental Forming, *Journal of Physics: Conference Series* V1063, 012125.
45. N V Reddy and R Lingam, 2018, Double Sided Incremental Forming: Capabilities and Challenges, *Journal of Physics: Conference Series* V1063, 012170.
46. A Subrahmanyam, R Lingam, K Hayakawa, S Tanaka and N V Reddy, 2020, Experimental and Numerical Investigation of Residual Stresses in Incremental Forming, *Materials Transactions (The Japan Institute of Metals and Materials)* V6, 228-233.
47. A M More, R Kalsar, P Shivshankar, R Lingam, N V Reddy, O Prakash and S Suwas, 2020, Incremental forming of the Al-Li alloy AA2195: Role of texture and microstructure, *The Journal of Minerals, Metals & Materials Society (TMS)*, V72, 1647–1655.
48. S Mishra, K U Yazar, A More, L Kumar, R Lingam, N V Reddy, O Prakash and S Suwas, 2020, Elucidating deformation modes in incremental sheet forming process: Insights from crystallographic texture, microstructure and mechanical properties, *Materials Science & Engineering A*, V790, 139311.
49. K Praveen, R lingam and N V Reddy, 2020, Tool Path Design System to Enhance Accuracy during Double Sided Incremental Forming: An Analytical Model for Predicting Compensations for Small/Large Components, *SME Journal of Manufacturing Processes*, V58, 510-523.
50. K Praveen, R Lingam, U Singh, CH Shivaprasad and N V Reddy, 2020, Enhancement of Accuracy in Double Sided Incremental Forming by compensating Tool Path for Machine Tool Errors, *International Journal of Advanced Manufacturing Technology*, V111, 1187-1199.
51. S Mishra, K U Yazar, A Kar, R Lingam, N V Reddy, O Prakash and S Suwas, 2021, Texture and microstructure evolution during single point incremental forming of commercially pure titanium, *Metallurgical and Materials Transactions A*, V52, 151-166.
52. S Shaik, A Raj, G Manikandan, R K Verma and N V Reddy, 2021, Prediction of Forming Strain for Optimum Dent Resistance, *International Journal of Mechanical Engineering and Robotic Research*, V10,633-638.
53. A Subrahmanyam, Ch Shivaprasad, Suman Guha, Raju D V, Rahul K Verma and N V Reddy, 2022, Importance of Machine Compliance to Quantify Electro-Plastic Effect in Electric Pulse Aided Testing: An Experimental and Numerical Study, *SME Journal of Manufacturing Processes*, V75, 268-279.
54. G Srinath, S Suryakumar and N V Reddy, 2022, Enhancing the Shape Complexity in Direct Energy Deposition with Phased Deformation, *International Journal of Automation Technology*, V16, 642-653
55. K Praveen, CH Shivaprasad and N V Reddy, 2022, Effect of support force on quality during double-sided incremental forming: an experimental and numerical study, *International Journal of Advanced Manufacturing Technology*, V122, 4275-4292.

56. S Cherukupally, P Konka and NV Reddy, 2022, Enhancement of Accuracy in Multi-Point Stretch Forming: Cushion Stretching, *SME Manufacturing Letters*, V33, 205-213.
57. G Srinath, S Suryakumar and N V Reddy, 2023, Residual stress reduction in wire arc additively manufactured parts using insitu electric pulses, *Science and Technology of Welding and Joining*, V28, 193-199.
58. P Konka, N V Reddy, Carla S A A and Kristian M, 2023, Optimal Process Planning for Energy Consumption and Product Quality during Double Sided Incremental Forming, *International Journal of Advanced Manufacturing Technology*. V125, 3305–3327.
59. S Cherukupally, A Subrahmanyam and NV Reddy, 2023, Effect of electric path in electric pulse aided V-bending of Ti-6Al4V: An experimental and numerical study, *SME Journal of Manufacturing Processes*, V100, 75-84.
60. S Cherukupally, P Konka and NV Reddy, 2024, Component Specific Elastic Cushion Design to Enhance the Accuracy with the usage of Reconfigurable tools in Stretch Forming, *IMechE Part B Journal of Engineering Manufacture*, V238, 406-418.
61. A Subrahmanyam, P Konka, NV Reddy, 2024, Electro-plastic effect in Ti-6Al-4V: An Experimental and Numerical study, *IMechE Part B Journal of Engineering Manufacture*, V238, 430-441.
62. K. Akshar, NV Reddy, SAA Carla, K Martinsen, S Suryakumar, 2024, Parametric investigation, formulation, and benchmarking of energy consumption for the powder bed fusion process, *Cleaner and Responsible Consumption*, Volume 14, 2024, 100205, <https://doi.org/10.1016/j.clrc.2024.100205>.
63. S Cherukupally and NV Reddy, 2024, Component Specific Cushion Design for Stretch Forming to Enhance Accuracy: Considering Space between Pins in Reconfigurable tools, Accepted for publication in *International Journal of Advanced Manufacturing Technology*. <https://doi.org/10.1007/s00170-024-14525-4>

Conference Proceedings

1. Sahu, A. K., and Reddy, N. V., 2002, A Knowledge Based Process Planning System for Axisymmetric Deep Drawing, *Symposium on Manufacturing Excellence*, IIT Madras, January 2002, 131-132.
2. Pandey, P. M., Reddy, N. V., and Dhande, S. G., 2003, Surface Roughness Simulation for FDM Processed Parts, Proceedings of 18th International Conference on Computer Aided Production Engineering (CAPE 2003), Edinburgh (UK), March 18 - 19, 2003, 413-421.
3. Vijay Kumar, P. V., and Reddy, N. V., 2003, Computer Aided Process Design System for Axisymmetric Deep Drawing, Proceedings of 18th International Conference on Computer Aided Production Engineering (CAPE 2003), Edinburgh (UK), March 18 - 19, 2003, 105-112.
4. Pandey, P.M., Reddy, N.V., and Dhande, S.G., 2005, Part Deposition Orientation Studies in Layered Manufacturing, Proceedings of 3rd *International Conference on*

- Advanced Manufacturing Technology* (ICAMT 2004), Kuala Lumpur, Malaysia, May 2004.
5. Bhanu Kishore, B., and Reddy, N. V., 2004, Ductile Fracture Prediction in Open Die Forging, Proceedings of 3rd JSTP International Seminar on Precision Forging (3rd JSTP ISPF, Organized by Japan Society for Technology of Plasticity), Nagoya (JAPAN), 6 pages., March 14-19, 2004. **(Invited)**
 6. Reddy, N. V., and Pandey, P. M., 2005, Enhancement of surface finish in Fused Deposition Modelling, *VRAP*, Portugal, Proceedings is Published by Traylor and Francis.
 7. Bansal, S., Malik, P., Reddy, N. V., and Saxena, A., 2005, Automated Modular Fixture Planning, CAPE 2005, Australia. **(Keynote)**
 8. Reddy, N. V and Pandey P. M., 2006, Layered Manufacturing, Invited Talk, *National Conference on Design for Product Life Cycle (DPLC-2006)*, February 17 - 18, 2006, BITS PILANI. **(Invited)**
 9. Manna, I, Tuli, M., Reddy, N.V., Ghosh, A., and Joshi, S., 2006, Laser and Plasma Technology in Manufacturing: The Indian Scenario, Invited Talk - Country Paper.
 10. Bansal, S., Srivastava, S., Reddy, N. V., Kripashanker, 2006, An Integrated Fixture Planning System for Minimum Tolerances, 1st *International and 22nd AIMTDR Conference*, December 2006, IIT Roorkee.
 11. Reddy, N. V., 2007, Automated Modular Fixture Planning - An Integrated Approach, *National Conference on Design, Dynamics and Manufacturing (NCDDM-2007)*, March 16-17, 2007, SLIET, Longowal.
 12. Reddy, N. V., 2007, Modelling and Simulation of Manufacturing Processes: Some Examples, 23rd National Convention of Mechanical Engineers, Theme: *Emerging Trends in Manufacturing Systems and technologies*, September 10-12, 2007, Hyderabad.
 13. Malhotra, R., Reddy, N. V., Agrawal, A., 2007, Automatic Contour Path Generation for Incremental Sheet Metal Forming, *International Symposium on Automotive Sheet Metal Forming*, December 17-18, 2007, Tata Nagar (Organized by TATA STEEL and IIM Jamshedpur Chapter).
 14. Malhotra, R., Reddy, N. V., Cao, J., 2008, A Generic Tool Path Generation Methodology for Incremental Forming, *International Manufacturing Science and Engineering Congress MSEC 2008*, October 7-10, 2008, Evanston, IL, USA.
 15. Wang, Y., Huang, Y., Cao, J., Reddy, N. V., 2008, Experimental Study on a New Method of Double Side Incremental Forming, *International Manufacturing Science and Engineering Congress MSEC 2008*, October 7-10, 2008, Evanston, IL, USA.
 16. Cao, J, Huang, Y., Reddy, N. V., Malhotra, R., Wang, Y., 2008, Incremental Sheet Metal Forming: Advances and Challenges, *International Conference on Technology of Plasticity (ICTP 2008)*, September 7 – 11, 2008, Gyeongju, Korea. **(Invited)**
 17. Reddy, NV., Cao, J., Incremental Sheet Metal Forming: A Review, 2008, Proceedings of the Indo-US workshop on Smart Machine Tools, Intelligent Manufacturing Systems at Multiscale Manufacturing, December 2008, PSG college of Technology, Coimbatore. **(Invited)**

18. Singh, S., Reddy, N.V., 2008, Incremental Sheet forming: A review, 3rd Mechanical National Conference (NCME), Thapar University, Nov 14-15, 2008.
19. Reddy, N.V., 2009, Incremental Forming: Review and Recent Developments, Third Indo-Japan Joint Seminar, Pune, March 2009.
20. Wang, Y., Wu, W., Huang, Y., Reddy, N.V., Cao, J., 2009, Experimental and Numerical Analysis of Double Sided Incremental Forming, *International Manufacturing Science and Engineering Congress MSEC 2009*, October 4-7, 2009, Indiana, USA.
21. S Singh, A Bhattacharya, N V Reddy, 2010, Formability and surface finish studies in single point incremental forming, *3rd international and 24th All India MTDR Conference*, December 13-15, 2010, Visakhapatnam, 133 – 137, 2010.
22. A Surti and N V Reddy, 2010, A non-discretized approach to visibility analysis for automatic mould feature recognition using STEP part model, *3rd international and 24th All India MTDR Conference*, December 13-15, 2010, Visakhapatnam, 597 – 602, 2010.
23. A Bhattacharya and N V Reddy, 2011, Grain orientation during single point incremental forming, The 6th international conference on micro-manufacturing (ICOMM 2011), March 7-10, 2011, Tokyo, 35-39.
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25. A Agrawal, N V Reddy, P M Dixit, 2011, Determination of Minimum Blank holding Pressure for Producing Wrinkle Free Products in Multistage Deep Drawing, *2011 ASME International Manufacturing Science and Engineering Conference (MSEC 2011)*, June 13-17, 2011, OSU Corvallis, 2011.
26. Rohith, U., Reddy, N.V., Dixit, P. M., 2011, A bilinear strain path approach for the prediction of forming limit curves under complex loading paths, ICTP 2011.
27. Asghar, J., Shibin, E., Bhattacharya, A., Reddy, N.V., 2012, Twist in single point incremental forming, *ASME 2012 International Manufacturing Science and Engineering Conference Collocated with the 40th North American Manufacturing Research Conference and in Participation with the Int. Conf., MSEC 2012*, pp. 243-247
28. Xu, D.-K., Malhotra, R., Cao, J., Reddy, N.V., Chen, J., 2012, Analytical prediction of stepped feature generation in multi-pass single point incremental forming, *Transactions of the North American Manufacturing Research Institution of SME 40*, pp. 84-93
29. Asghar, J., Reddy, N. V, 2013, Importance of Tool Configuration in Incremental Sheet Metal Forming of Difficult to Form Materials using Electro-Plasticity, *Proceedings of the World Congress on Engineering 2013 Vol III, WCE 2013*, July 3 - 5, 2013, London, U.K.
30. J Asghar, R Lingam, N. V. Reddy, 2014, Tool Path Influence on Electric Pulse Aided Deformation during Incremental Sheet Metal Forming, Melbourne, January 6-10, NUMISHEET 2014.

31. R Lingam, J Asghar, A Bhattacharya, N V Reddy, 2015, Compensations for Tool Path to Enhance Accuracy during Double Sided Incremental Forming, ASME International Manufacturing Science and Engineering Conference (MSEC 2015).
32. R Lingam, C L Harikrishnan, I V M Kishan, N V Reddy, 2015, Importance of Feature Sequencing in Incremental Forming, ASME International Manufacturing Science and Engineering Conference (MSEC 2015).
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34. Bansal, A., Lingam, R., Yadav, S K., Reddy N V., 2017, Prediction of Forming Forces in Single Point Incremental Forming, 45th SME North American Manufacturing Research Conference (NAMRC) 45, LA, USA.
35. Subrahmanyam, A., Praveen, K., Rahul Verma, Reddy, N V., 2018, A review on electric pulse aided plastic deformation, Asia Steel (International Conference) 2018, February 6-9, 2018, Bhuvaneshwar, India. (**Keynote**)
36. S Shamshoddin, Abhishek Raj, Rahul Kumar Verma and N Venkata Reddy, 2018, Improvement in the prediction of dent prediction with the Young's modulus degradation model, Asia Steel (International Conference) 2018, February 6-9, 2018, Bhuvaneshwar, India.
37. N V Reddy, R Lingam, 2018, Double Sided Incremental Forming: Capabilities and Challenges, NUMISHEET 2018 (International Conference and Workshop on "Numerical Simulation of 3D Sheet Metal Forming Processes"), July 30-Aug 3, 2018, Tokyo. (**Keynote**)
38. R Lingam, P Konka, K Kalathiya, S Shaik, N V Reddy, 2018, Analysis of Anisotropic Effects in Single Point Incremental Forming, NUMISHEET 2018 (International Conference and Workshop on Numerical Simulation of 3D Sheet Metal Forming Processes, July 30-Aug 3, 2018, Tokyo.
39. A Subrahmanyam, R. Lingam, K Hayakawa, S Tanaka, N V Reddy, 2019, Double sided Incremental Forming - Experimental and Numerical Investigation of Residual Stresses in Incremental Forming, APSTP 2019, Tokyo, July 31 – Aug 3, 2019. (**Invited**)
40. M Matsumoto, S Hirose, K Martinsen, S Suryakumar, N V Reddy, G D Sverre, 2019, Additive Manufacturing for Circular Manufacturing: Trends and Challenges – A Survey in Japan, Norway, and India; EcoDesign 2019, Yokohama, Nov 25-27, 2019.
41. S Suryakumar, N V Reddy, 2019, Advanced Manufacturing Capabilities in Existing Machinery: A Case Study of Retrofitting CNC and Weld-Deposition for Additive Manufacturing, EcoDesign 2019, Yokohama, Nov 25-27, 2019.
42. N V Reddy, S Suryakumar, M Matsumoto, K Martinsen, G D Sverre, 2019, Incremental Sheet Metal Forming: A Candidate Process for Circular Manufacturing, EcoDesign 2019, Yokohama, Nov 25-27, 2019.
43. K Martinsen, S A Carla, T Kito, M Matsumoto, N V Reddy, G D Sverre, 2019, Closed Loop Tolerance Engineering Modelling and Maturity Assessment in a Circular Economy Perspective, EcoDesign 2019, Yokohama, Nov 25-27, 2019.
44. A Subrahmanyam, M Dakaiah, RK Verma and N Venkata Reddy, 2021, Effect of current carrying length in electric pulse aided deformation. Proceedings of the 5th

- International Conference on Mechanical, System and Control Engineering (ICMSC), Kazan, Russian Federation, July 16-19, 2021.
45. Subrahmanyam, A., Saurabh, S., Praveen, K., Ramu, G., Reddy, N.V., 2023, Electric Pulse Aided Draw-Bending of Ti-6Al-4V. Flexible Automation and Intelligent Manufacturing: The Human-Data-Technology Nexus: Proceedings of FAIM 2022, June 19–23, 2022, Detroit, Michigan, USA, V2, 3-11.
 46. S Cherukupally, S Suryakumar, SAA Carla, K Martinsen, GD Sverre, NV Reddy, 2023, Reconfigurable Tooling for Circular Manufacturing: A Review, Eco-Design 2023, Nara, Nov29-Dec1, 2023.
 47. S Suryakumar, N V Reddy, M Matsumoto, SAA Carla, K Martinsen, GD Sverre, 2023, Eco-process Design for Metal Additive Manufacturing: Elucidation through Case-Studies, Eco-Design 2023, Nara, Nov29-Dec1, 2023.
 48. Shivaprasad Ch, Vishwanath N, Praveen K, Suryakumar S, Venkata Reddy N, 2024, Judicious Hybridization of Incremental Forming and Additive Manufacturing to Enhance Product Complexity Through Non-Planar Substrate/Deposition, Proceedings of the ASME 2024 19th International Manufacturing Science and Engineering Conference (MSEC). Volume 1: Additive Manufacturing; Advanced Materials Manufacturing; Biomanufacturing; Life Cycle Engineering. Knoxville, Tennessee, USA. June 17–21, 2024. V001T01A056. ASME. <https://doi.org/10.1115/MSEC2024-130324>.

Thesis Supervision

Ph.D. Students (Graduated): 9

1. Pulak M. Pandey, 2003, Surface Finish Enhancement in Fused Deposition Modelling (Professor, IIT Delhi)
2. Shrikant Bansal, 2006, A Neutral Format Part Model based Integrated Fixture Planning System for Minimum Tolerances (Asian Development Bank)
3. Anupam Agrawal, 2008, Studies on Optimal Blank Shape and Wrinkling in Axy-symmetric Multistage Deep Drawing (Professor, IIT Ropar)
4. Dharmendra, B V, 2008, Electro Discharge Machining Tool Design and Development of Electro-Conductive Ceramic Tool Materials (Professor, Karnataka)
5. Bhattacharya, A., 2014, Studies on Incremental Forming to Enhance Accuracy and Geometric Complexity. (Associate Professor, IIT Patna)
6. Rakesh Lingam, 2019, Tool Path Generation System for Double Sided Incremental Forming. (Assistant Professor, IIT Dharwad)
7. Praveen Konka, 2022, Double Sided Incremental Forming of Scaled-up Components (Assistant Professor, Mahindra University)
8. Shail Shamshoddin, 2022, Dent Resistance of Stamped High Strength Steel Panels. (TATA STEEL R&D)
9. Subrahmanyam Adabala, 2022, Quantification of Electro-Plastic Effect: Experimental and Numerical Studies. (Regal Rexnord)

M.Tech. Students (Graduated): 50+

Major Sponsored Projects (with Significant Contribution)

(@IIT Kanpur and/or IIT Hyderabad (Completed as well as Ongoing))

1. Integrated Product and Process Design for Hybrid Incremental Sheet Forming and Non-Planar Metal Additive Manufacturing, DST-AMT, 2023-2025, IITH
2. Circular Manufacturing research and educational collaboration with India and Japan (CIRMAN), Project #322275, Norwegian Research Council, 2022-2026, IITH.
3. Intelligent Circular Manufacturing research and educational collaboration with India and Japan (INMAN), Norwegian Research Council, Project # 275156, 2018 – 2021, IITH.
4. Development of an Integrated Metal Additive and Formative Manufacturing System to Enhance Product Complexity and Properties, AMT-DST(Co-PI), 2019 – 2021, IITH.
5. Development of Electric Pulse Aided Forming Processes, UAY Project MoE, DHI and TATA STEEL, 2016- 2021, IITH.
6. Some studies on Incremental Forming, Boeing Global, 2011-2022.
7. Forming of Thermoplastic Composites using Reconfigurable Tooling, Boeing Global, 2017 – 2018, IITH.
8. Development and Validation of Predictive Models for Forming of Large Components using DSIF and Studies on Difficult to Form Materials, SERB, 2016- 2020, IITH.
9. Founding PI (2013-2015) of TEQIP Knowledge Incubation Cell@IITH (2013-ongoing.), IITH
10. Single Point Incremental Forming of Ti Alloys, DRDO, Delhi, 2011-2012. IITK.
11. One of the main investigators in “Indo-US Centre for Research Excellence in Fabionics”, Indo-USA S&T Forum, DST, 2008 – 2013, IITK.
12. Strain Path Independent Forming Limit Diagram for sheet metal forming simulation, TATA STEEL, 2008-2011. IITK
13. Incremental Sheet Metal Forming at Multi-scales, NSF USA, 2008–2011, PI in USA: J Cao, Northwestern University Evanston, IITK.
14. Incremental Sheet Metal Forming at Multi-scales, DST, 2008–2011, IITK.
15. Automatic Modular Fixture Planning for Minimum Tolerances, DST, 2006 – 2009, IITK.
16. One of the main investigators in “Indo-US center on Advanced and Futuristic Manufacturing”, Indo-USA S&T Forum, DST, 2006–2008, IITK
17. Drawing of an Ultra-Thin Wire: A Numerical and Experimental Study, DST-JSPS, 2006 – 2008, Indo-Japan Project, IITK.
18. “Finite Element Applications in Metal Forming” for TATA STEEL (R&D) Engineers, TATA STEEL, 2005, IITK.
19. Hybrid Fused Deposition Modelling RP System for Enhancing Surface Finish, CSIR, (2003 – 2006), IITK.
20. Knowledge Based Process Planning System for Deep Drawing, DST, (2000 - 2003), IITK.

21. Computer Modelling and Simulation of Plane Strain Rolling Process for Internal Defect Prediction, Department of Science and Technology (DST), (2000 - 2002), IITK.

Recognition

- **Associate Editor**, Journal of Manufacturing Processes (Society of Manufacturing Engineers Journal, USA), Published by Elsevier (Oct 2008-Oct 2014)
- **Best Teacher** Citation for Introduction to Manufacturing Processes @IITK
- **Best Tutor** Citation for Engineering Graphics @IITK
- **Best Teacher** Citation Metal Forming @IITK
- **Best Teacher** Citation for Manufacturing Systems Course @IITK
- **Best Teacher** Citation for Rapid Manufacturing Course @IITK
- **Delivered Key note/Invited talks** at International and National conferences

Service and Other (Selected list)

1. Dean (Research and Development), IIT Hyderabad, June 2014-August 2017.
2. Member of Domain Expert Committee (Manufacturing), IMPRINT (An Initiative of MHRD, GOI) (2016-2019)
3. Member, PAC, SERB (SRG and NPDF), 2021-2024.
4. Member, PAC on TDM, DST (GoI, 2016-2019)
5. Coordinator, Design and Manufacturing domain, IITH – Japan FRIENDSHIP Project (2014-2018)
6. Member, Review Committee (ME Department), NIT warangal
7. Member, BoG, NIT Warangal (2017-2018)
8. Member, BoG, College of Engineering, Andhra University (2016-2018)
9. Member, PAC, International Programme's in Materials and Engineering Sciences, DST. (2017- 2019)
10. Member, Research Advisory Board, Central Manufacturing Technology Institute (CMTI), Bengaluru (2018-2023)
11. Member, Academic Council, NIT Tadepalligudem AP. (2018-2020)
12. Member, BoG, Vasavi College of engineering, Hyderabad (2018-2023)
13. Member, Academic Council, CBIT Hyderabad. (2016-Till date)
14. Reviewer for many International Journals in the areas of Manufacturing, CAD/CAM and 3D Printing/Additive Manufacturing.
15. Technical/Scientific/Advisory committee member of Many International Conferences in Manufacturing.
16. Member (2006-2012) and co-cordinator (2011-2012), VLFM coordination committee@IIT Kanpur
17. Coordinator, Introduction to Manufacturing Processes (TA201N ME CORE) laboratory (January 2001- 2012) @IIT Kanpur
18. Coordinator, Departmental D0 and Prototyping Laboratory, September 2007 - 2012. @IIT Kanpur
19. Convener, DPGC, Department of Mechanical Engineering (2003-2004, 2010-2011) @IIT Kanpur

20. Warden, Hall V, Feb 2004 – Feb 2005. @IIT Kanpur
21. Member, Senate Elections Committee (2002-2003) @IIT Kanpur
22. Member, Asia Youth Forum in Advanced Manufacturing (JSME) (2001-2005)
23. Conducted number of Short courses/Workshops for faculty members as well as Industry personnel in the area of Manufacturing (at IITK as well as IITH)
24. Delivered invited talks in more than 25 universities(abroad)/Research organizations/Industries.