Dr. Yashwant Kumar Modi

Associate Professor

Education: Ph.D. , M.E., B.E
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Areas of Interest: Additive (3D Printing) and subtractive manufacturing processes, Computer aided manufacturing, Operation Research and Industrial Engineering.

Brief Profile:

Dr.Yashwant Kumar Modi obtained his Bachelor of Engineering degree in Industrial and Production Engineering in 1998 from Shri G. S. Institute of Technology and Science, Indore, Madhya Pradesh. He completed Master of Engineering in Computer Integrated Manufacturing (CIM) with honours from the same Institute. He was awarded Ph.D. degree in the area of Additive Manufacturing by JUET, Guna, MP in 2014. His area of interest includes additive (3D Printing) and subtractive manufacturing processes, Computer aided manufacturing, Operation Research and Industrial Engineering etc. He has about 20 years teaching and 3 years industry experience in various engineering institutions and industries. He served Institute of Management Studies (IMS) DAVV, Indore and Shri Vaishnav Institute of Management, Indore as visiting faculty. He has delivered invited talks/lectures in reputed institutes and industries including IIT BHU, Symbiosis University, Tata International Ltd. and Jaypee Cement etc. He has published research articles in reputed SCI and SCOPUS indexed Journals. He also authored some book chapters with Springer publishers and one book titled "Environmental Impact Comparison of Some Cast Metals Using LCA Approach: A Step Towards Sustainable Manufacturing" . Currently, he is also working on MPCST sponsored project (as principal investigator) on "3D printed porous bone scaffolds" , costing Rs. 6.45 lakhs. He has also organised DST/MPCST sponsored national workshops in area of Additive manufacturing and Computer integrated Manufacturing.

Research Project (Completed)
1. Principal Investigator in MPCST, Bhopal sponsored research project in the area of 3D printed bone scaffolds. Project cost: 6.45 Lakhs, Duration: 02 years

Ph.D. Thesis Supervision
1. Kiran Kumar Sahu (Er. No. 193E002), "Experimental investigations of 3D printed bone scaffolds." (Completed)
2. Ms. Falguni Gorana (Er. No. 213E001), "Medical applications of additive manufacturing." (Ongoing)

Publication@JUET

Publication details google profile link

International Journal
- Kiran Kumar Sahu and Yashwant Kumar Modi (2022), "Multi response optimization for compressive strength, porosity and dimensional accuracy of binder jetting 3D printed ceramic bone scaffolds" , Ceramics International, Volume 48, No. 18, pp. 26772-26783. (SCI)

 Falguni Gorana, Kiran Sahu and Yashwant Kumar Modi, "Parameter Optimization for Dimensional Accuracy of Fused Deposition Modelling Parts using Taguchi Method" , Materials Today Proceedings, DOI: https://doi.org/10.1016/j.matpr. 2022.12.068 (Scopus)

- Yashwant Kumar Modi and Kiran Kumar Sahu (2021), "Process parameter optimization for porosity and compressive strength of calcium sulfate based 3D printed porous bone scaffolds", Rapid Prototyping Journal, Vol. 27 No. 2, pp. 245-255. (SCI).

- Kiran Kumar Sahu and Yashwant Kumar Modi,(2021) "Effect of Printing Parameters on Compressive Strength of Additively Manufactured Porous Bone Scaffolds Using Taguchi Method" , International Journal of Manufacturing, Materials, and Mechanical Engineering, Vol. 11, No. 1, pp.18-33. (ESCI/SCOPUS).

- Yashwant Kumar Modi and Navneet Khare (2020), "Patient-specific polyamide wrist splint using reverse engineering and selective laser sintering" , Materials Technology, DOI:10.1080/10667857.2020.1810926 (SCI).

- Kiran Kumar Sahu and Yashwant Kumar Modi (2020) "Investigation on dimensional accuracy, compressive strength and measured porosity of additively manufactured calcium sulphate porous bone scaffolds" , Materials Technology, DOI: 10.1080/10667857.2020.1774728 (SCI)

- Abhishek Aswal, Aditya Jha,| Anshul Tiwari and Yashwant Kumar Modi (2019), "CNC Turning Parameter Optimization for Surface Roughness of Aluminium-2014 Alloy Using Taguchi Methodology" , Journal EuropÃ©en des SystÃ¨mes AutomatisÃ©s, Vol. 52, No. 4, pp. 387-390. (SCOPUS)

- Abhishek Srivastava, Adarsh Sharma, Aditya Singh Gaur, Rahul Kumar and Yashwant Kumar Modi (2019), "Prediction of surface roughness for CNC turning of EN8 steel bar using artificial neural network model." , Journal EuropÃ©en des SystÃ¨mes AutomatisÃ©s, Vol. 52, No. 2, pp. 185-188. (SCOPUS)

- Yashwant Kumar Modi and Sidharth Sanadhya(2018), "Design and additive manufacturing of patient-specific cranial and pelvic bone implants from computed tomography data." Journal of the Brazilian Society of Mechanical Sciences and Engineering Vol. 40, No. 10, pp. 503: 1-11. (SCI)

- Yashwant Kumar Modi (2018), "Calcium Sulphate based 3D Printed Tooling for Vacuum Forming of Medical Devices: An Experimental Evaluation" , Materials Technology, Vol. 33, No. 10, pp. 642-650. (SCI)

- Rathor S, Sharma A and Modi YK (2018), "Process capability analysis of Fused deposition modeling process" , Int J of Advences in Engg and Tech, Vol. 11, No. 5, pp. 147-154.

- HV Rai, Yashwant Kumar Modi and Ashay Pare (2018) , "Process parameter optimization for tensile strength of 3D printed part using response surface methodology" , IOP Conf. Series: Materials Science and Engineering, Vol. 377 (2018) 012027 doi:10.1088/1757-899X/377/1/012027.(SCOPUS)

- Ashay Pare, Yashwant Kumar Modi and HV Rai (2018), "Environmental impact comparison of binder systems for sand moulding process using cradle-to-grave approach" , IOP Conf.

Series: Materials Science and Engineering Vol. 377 (2018) 012028 doi:10.1088/1757-899X/377/1/012028. (SCOPUS)

 YK Modi, Sanat Agrawal and Deon De Beer (2015), "Direct Generation of STL Files from USGS DEM Data for Additive Manufacturing of Terrain Models" Virtual and Physical Prototyping, Vol. 10, No.3 , pp. 137-148. (SCIE/SCOPUS)

- Sanat Agrawal, De J de Beer , YK Modi (2014), "Conversion of a GIS surface data directly to a 3D STL part for terrain modeling" , Rapid Prototyping Journal, Vol. 20, No. 5, pp. 422-430. (SCI)

- YK Modi, Sanat Agrawal, De J de Beer (2012), "Physical modeling of terrain directly from surfer grid, ARC/INFO ASCII and DEM ASCII XYZ data formats" , South African Journal of Industrial Engineering, Vol. 23, No. 2, pp. 230-241. (SCI)

- Joshi P, Sharma A and Modi YK, (2018)"Optimization of process parameters during laser cutting of Ni-based superalloy thin sheet using response surface methodology" , Materials Toady Proceedings Journal. (Scopus)

- YK Modi, Sanat Agrawal (2014), "Obtaining 3D PLY part from DEM surface data for terrain modeling by additive fabrication" , Int J of Engg Sc and Tech, Vol. 6, No. 4, pp. 177-187.
- S Sanadhya, N Vij, P Chaturvedi, S Tiwari, B Arora, YK Modi (2015), Medical Applications of Additive Manufacturing" , International Journal of Scientific Progress And Research, Vol. 12, No. 01, pp. 11-17.

Book/Book Chapter

- Khare N., Sharma G., Modi Y.K. (2020) Finite Element Analysis of Patient-Specific Femur Bone for Synthetic Biomaterials. In: Biswal B., Sarkar B., Mahanta P. (eds) Advances in Mechanical Engineering. Lecture Notes in Mechanical Engineering. Springer, Singapore, DOI:https://doi.org/10.1007 /978-981 - 15-0124-1_58.

- Priyanka Joshi, Amit Sharma, Vinod Yadava and Yashwant Kumar Modi, "Nd: YAG Laser Cutting of Ni-Based Superalloy Thin Sheet: Experimental Modeling and Process Optimization" , in Application of Lasers in Manufacturing. DOI: https://doi.org/10.1007/978-981-13-0556-6_8; Springer, Singapore, June, 2018.

- Y.K.Modi, "Environmental Impact Comparison of Some Cast Metals Using LCA Approach: A Step Towards Sustainable Manufacturing" ISBN: 978-3847338437, LAP LAMBERT Academic Publishing GmbH & Co. KG, Germeny.

International Conference

- Agrawal, S., De Beer, D. J. and Modi, Y. K., "Direct conversion of a GIS surface data to a 3D STL part" 11th RAPDASA-2010, an international conference, hosted by the Vaal University of Technology, November 5-6, 2010, South Africa.

- Joshi D., Modi Y.K., Ravi B., "Evaluating environmental impacts of sand cast products using life cycle assessment" International Conference on Research into Design (ICoRD11)" , Indian Institute of Science (IISc), January 10-12, 2011, Bangalore.

 Agrawal, S., De Beer, D. J. and Modi, Y. K. "Physical Modeling of Terrain Directly from Surfer grid, ARC/INFO ASCII and DEM ASCII XYZ Data Formats" RAPDASA-2011 Conference, November 2-4, 2011, South Africa.

- Modi Y.K., Jain V., "Reverse engineering of mechanical component using point cloud data by CMM" , International Conference on Advances & Development in Engineering & Technology (ICADET), February 8-9, 2013, Indore.

- Joshi P, Sharma A, Yadava V and Modi Y K, "Multi-objective Optimization of Kerf Quality Characteristics during Nd-YAG Laser Cutting of Ni-based Superalloy Thin Sheet using Hybrid Approach" Proceedings of 6th AIMTDR-2016 Conference, College of Engineering, Pune, Maharashtra, December 16-18, 2016, pp 454-457.

- Joshi P, Sharma A and Modi Y K," Modeling and Optimization of Kerf Geometry during ND: YAG Laser Cutting of Aluminum Alloy Sheet" Proceeding of International Conference ARIMPIE-2017, ITS Engg College, NOIDA, April 21-22, 2017, pp 296-300.

- Soni A, Modi YK, Agrawal S, "Computed tomography based 3D modeling and analysis of human knee joint" , In proceedings of IconAMM-2017, Amrita school of Engineering, Bengaluru, August 17-19, 2017, pp 502.

- Joshi P, Sharma A and Modi YK, "Optimization of process parameters during laser cutting of Ni-based superalloy thin sheet using response surface methodology" , In proceedings of IconAMM-2017, Amrita school of Engineering, Bengaluru, August 17-19, 2017, pp . 420.

- Rai HV, Modi YK and Pare A, "Process parameter optimization for tensile strength of 3D printed part using response surface methodology" , ICMMRE-2017 held at Sikkim Manipal Institute of Technology, Manipal, December 8-10, 2017.

- Pare A, Modi YK and Rai HV, "Environmental impact comparison of binder systems for sand moulding process using cradle-to-grave approach" , ICMMRE-2017 at Sikkim Manipal Institute of Technology, Manipal, December 8-10, 2017.

Invited/Expert Lecture Delivered

- Delivered two lectures on "Fundamentals, Classification and Applications of 3D Printing" during National workshop on Fundamentals of 3D Printing and Robotics for school-teachers during May 18-20, 2023.

- Delivered two expert lectures on "Additive Manufacturing and its Applications in Aerospace, automotive, medical and other Areas" , during three-day "National Workshop on Additive Manufacturing (NWAM-2021)" , organized by Department of Mech. Engg, JUET, Raghogarh, Guna, MP , April 15-17, 2021.

- Delivered keynote address (Online mode) on "State of the Art in Medical 3D Printing" , in TEQIP sponsored- Two days Workshop on "Laser Micro Processing for Bio Medical Applications, organized by Coimbatore Institute of Technology, Coimbatore on March 15, 2021.

 Delivered an invited webinar on "3D Printing Application in Civil Engineering" , organised by Department of Civil Engineering, Jaypee University of Engineering and Technology, Guna on March 6, 2021.

- Delivered an expert lecture (Online mode) on "Medical and Biomedical Application of 3D Printing" , in one week AICTE-RGPV Joint Online Teachers Training Program (TTP) at IPS Academy, Institute of Engineering and Science, Indore (M.P.) on March 5, 2021.

- Delivered an expert lecture (Online mode) on "Biomedical Application of 3D Printing" , in one week ATAL FDP at IPS Academy, Institute of Engineering and Science, Indore (M.P.) on October 9, 2020.

- Delivered an invited lecture on "Automation in Industries" in one week FDP on "Recent Trends in Manufacturing System & Industrial Practices" , organized by Govt. S. V. Polytechnic College, Bhopal on March 04, 2020.

- Delivered invited talk on "Recent Development in Additive Manufacturing" in FDP sponsored by APJ Abdul Kalam Technical University, Lucknow, UP under TEQIP-III, organized by Galgotias College of Engineering and Technology, Greater Noida on January 17, 2020.

- Delivered three lectures as a sole resource person in two-day FDP on "Additive Manufacturing (3D Printing)" held at Symbiosis University of Applied Sciences (SUAS), Indore, MP during Feb 16-17, 2018.

- Two expert lectures on Additive Manufacturing and its applications have been delivered in QIP-AICTE STTP on "Additive Manufacturing: Theory and Practice" organized by IIT, BHU, Varanasi, UP on February 5, 2018.

- Expert lectures (Two) on "Additive manufacturing and its applications (special emphasis on medical applications) in various parts of society" in QIP-AICTE sponsored STTP on "Additive Manufacturing" organised by IIT, BHU, Varanasi, UP during March 16-22, 2017.

- Invited talk on "Faceted Models from GIS Data Formats for Terrain Modeling using Additive Manufacturing" in a STTP on Additive Manufacturing organized by Marwadi Education Foundation, Rajkot, Gujrat on April 27, 2016.

- Delivered three lectures on "Fundamentals and applications of Additive Manufacturing" in three-day National Workshop on Additive Manufacturing [NWAM-2015] organized by the Mechanical EnggDept, JUET, Guna, November 19-21, 2015.

- Lecture on "Automation and CIM" in National Workshop on Advanced Manufacturing Technologies, JUET, Guna, September 27 - 29, 2013.

- Guest lecture on "Statistical Quality Control" at JP Cement, Rewa, April 28-30, 2011.

- Lecture on "Computer Integrated Manufacturing (CIM): An Introduction" in National Workshop on Manufacturing Automation, JUET, Guna, December 16-17, 2011.

- Invited lecture on "CNC Machines and Manual Part Programming" at K.C. Bansal College of Technology, Indore, May 22, 2009.

 Invited lecture on "TQM and Problem Solving Techniques" in the "Workshop on Shop Floor Management" organized by Deptt. of Mgmt Studies, IIST, Indore, MP, March, 2009.

Workshop Organized

- Coordinator of Three-day National workshop on "Fundamentals of 3D Printing and Robotics" for school-teachers held in Online mode by JUET Guna during May 18-20, 2023.

- Coordinator of three-day "National Workshop on Additive Manufacturing (NWAM-2021)" , self sponsored, organized in online mode, by MEC Department, Jaypee University of Engg. and Tech., Raghogarh, Guna, MP , April 15-17, 2021.

- Coordinator of three-day "National Workshop on Additive Manufacturing (NWAM-2015)" , co-sponsored by MPCST, Bhopal, held at Jaypee University of Engg. and Tech., Raghogarh, Guna, MP , November 19-21, 2015.

- Organising Secretary of the "National Workshop on Advanced Manufacturing Technologies" , September 27-29, 2013, co-sponsored by MPCST, Bhopal, held at Jaypee University of Engg. and Tech., Raghogarh, Guna, MP.

- Organising Secretary of "National Workshop on Manufacturing Automation" , December 16-17, 2011, cosponsored by MPCST, Bhopal and CSIR, New Delhi, held at Jaypee University of Engg. and Tech., Raghogarh, Guna, MP.

- Co-coordinator of "Workshop on Recent Trends in Production and Mechanical Engineering" March 9-10, 2009, held at IIST, Indore, MP.

Supervision

- Ph.D - 2 (1-Completed, 1-Ongoing)

- M.Tech. - 4 (Completed)

Reviewer/Editorial Board Member

Editorial Board member:

- Mathematical Modeling of Engineering Problems, IIETA Publication (SCOPUS indexed Journal)
- JUET Chronicle- Official Newsletter of JUET, Guna

Reviewer:

- Journal of the Mechanical Behavior of Biomedical Materials (SCIE/Scopus, Elsevier Publication)
- Rapid Prototyping Journal (SCIE/Scopus, Emerald Publication)
- Journal of the Brazilian Society of Mechanical Sciences and Engineering (SCIE/Scopus, Springer)
- Materials Technology: Advance Performance Material (SCI/Scopus, Taylor and Francis)
- Australian Journal of Mechanical Engineering (ESCI/Scopus, Taylor and Francis)
- Materials Today Proceeding (Scopus, Elsevier)
- IOP Conference Series: Materials Science and Engineering (Scopus, IOP Science)
- Int J of Rapid Manufacturing (Inderscience)
- Int J of Additive and Subtractive Materials Manufacturing (Inderscience)