

Inderdeep Singh, PhD
Dean (Infrastructure)

Professor
Department of Mechanical & Industrial Engineering
Indian Institute of Technology Roorkee
Roorkee, Uttarakhand – 247667, INDIA
Ph: +91-1332-285614 (O), 285177 (R)
Email: inderdeep.singh@me.iitr.ac.in

Educational Details:

| School/Institute | Board | Degree | Year |
|----------------------------------|--------------|-------------------------------|-------------|
| Indian Institute of Technology | IIT Delhi | Doctor of Philosophy | 2004 |
| Indian Institute of Technology | IIT Delhi | Master of Technology | 2000 |
| National Institute of Technology | NIT Hamirpur | Bachelor of Technology | 1998 |

Work Experience:

| | Designation | Institute/University | From | To |
|----|---------------------|--|----------------|----------------|
| 1. | Professor | Indian Institute of Technology Roorkee | December, 2019 | Till date |
| 2. | Associate Professor | Indian Institute of Technology Roorkee | October, 2012 | December, 2019 |
| 3. | Assistant Professor | Indian Institute of Technology Roorkee | May, 2008 | October, 2012 |
| 4. | Lecturer | Indian Institute of Technology Roorkee | Dec., 2005 | May, 2008 |
| 5. | Lecturer | Punjab Engineering College, Chandigarh | August, 2005 | December, 2005 |
| 6. | Lecturer | Institute of Technology, BHU, Varanasi | October, 2004 | July, 2005 |

Important Achievements

- “Outstanding Teacher Award – 2013’** by Indian Institute of Technology Roorkee on Teachers Day, September 05, 2013
- Foundation for Innovation and Technology Transfer (FITT) Award for **Best Industry Relevant PhD Thesis** of the Year 2004-2005* by IIT Delhi
- 1st Position** in the Class of Mechanical Engineering of 1998 at REC (NIT) Hamirpur (H.P)
- ‘Outstanding Sportsperson of the Year - 2000’** by Board of Sports Activities, IIT Delhi
- ‘Roll of Honor - 2004’** by Vindhyachal House, IIT Delhi
- ‘Institute Blazer’** for Outstanding Performance in Field Hockey at Inter-IIT Sports Meet Held at IIT Bombay.
- 2 Gold, 6 Silver and 2 Bronze Medals** at Inter IIT Sports Meet in Hockey and Football (1998-2003).
- Delivered more than 100 Keynote/Expert/Invited Lectures during various conferences/ symposia/ workshops/FDPs at reputed Universities/Institutes in India including IITs, NITs and abroad.

Important Academic and Administrative Assignments

- Head**, Department of Design (2021-2024) (*Founding Head*)
- Coordinator**, E-Learning Centre, IIT Roorkee (2019 – 2021)
- Local Coordinator**, GIAN, IIT Roorkee (2019 – 2021)

- **Coordinator**, NPTEL, IIT Roorkee (2019 – 2021)
- **Coordinator**, *Rethink-The Tinkering Lab*, (2017 – 2019)
- **Associate Dean of Students' Welfare**, Indian Institute of Technology Roorkee (2013-2017)
- **Associate NCC Officer (ANO)** at 3 UK Composite Technical Regiment, NCC, IIT Roorkee
- **Nominated Member (Senate)**, Indian Institute of Technology Roorkee (2014-2016)
- **Coordinator (Orientation Program for 1st Year Students)** (2013 – 2016)
- **Member** (Board of Studies, Mechanical Engineering) at Panjab University, Kurukshetra University, GEHU, Uttaranchal University, Guru Nanak Dev Engineering College (Ludhiana).

Advisory Committee of Various International Conferences/Seminars/Workshops.

- Member**, International Advisory Committee, Asian-Australasian Conference on Composite Materials ACCM 11/ 2018- **Australia**, ACCM-10/ 2016- **South Korea**, ACCM-9/2014- **China**
- Conference Chair**, Twenty Fifth International Symposium on Processing and Fabrication of Advanced Materials (PFAM XXV-2017), University of Auckland, New Zealand
- Organizing Secretary**, Twenty Third International Symposium on Processing and Fabrication of Advanced Materials (PFAM XXIII-2014), IIT Roorkee.
- Invited to chair a session in** 11th Canadian – International Conference on Composites. (CANCOM-2019). Canada, July, 2019

Teaching Engagement

| Under-Graduate Courses | | Post-Graduate Courses | |
|-------------------------------|---|------------------------------|----------------------------------|
| 1. | Introduction to Mechanical Engineering | 1. | Product Design and Development |
| 2. | Introduction to Production and Industrial Engineering | 2. | Design for Manufacturability |
| 3. | Manufacturing Techniques | 3. | Materials and Manufacturing |
| 4. | Manufacturing Technology | 4. | Process Innovation Management |
| 5. | Production Planning and Control | 5. | Design for Extreme Affordability |
| 6. | Operations Management | 6. | Industrial Disasters and Safety |
| 7. | Work System Design | 7. | Processing of Non-Metals |
| 8. | Industrial Management | | |
| 9. | Value Engineering | | |
| 10. | Network Analysis | | |
| 11. | Polymer Composites | | |
| 12. | Quality Management | | |

Summary

| | | | |
|---------------------------------|---|----------|-----------------------------------|
| <u>Research Guidance</u> | Ph.D. | : | 21 Completed (Annexure I) |
| | | | 15 in Progress |
| | M. Tech/M.Des | : | 62 Completed (Annexure II) |
| | | | 03 in Progress |
| <u>Publications</u> | Journals | : | 146 (Annexure III) |
| | Conferences | : | 115 (Annexure IV) |
| <u>Projects</u> | Funded Projects (Annexure-V) | | |
| | Consultancy Projects (Annexure- VI) | | |
| <u>Review Work</u> | Reviewer of more than 25 National and International Journals | | |

Short Term Courses (STC) Conducted as Coordinator/ Co-Coordinator

| S.No. | Name of the Workshop | Participating Delegates/Institutes / Agencies / Organizations | Date |
|---|--|--|--------------------|
| Sponsored by Ministry of MSME. | | | |
| 1. | Awareness Programme on “MSME Innovative (Design) Scheme” Industry-Academia Interface | Roorkee Small Scale Industrial Association (RSSIA), Roorkee | March 02, 2024 |
| 2. | Awareness Programme on “MSME Innovative (Design) Scheme” Industry-Academia Interface | Bhagwanpur Industries Association, Bhagwanpur. | January 04, 2024 |
| 3. | Awareness Programme on “MSME Innovative (Design) Scheme” Industry-Academia Interface | Sidcul Manufacturing Association Uttarakhand (SMAU), Haridwar. | March 22, 2023 |
| 4. | Awareness Programme on “MSME Innovative (Design) Scheme” Industry-Academia Interface | Sidcul Manufacturing Association Uttarakhand (SMAU), Haridwar. | February 25, 2023 |
| Sponsored by Design Innovation Center, NIDI, MOE | | | |
| 1. | Two Days Workshop on “Modern (Cleaner, Leaner and Greener) Manufacturing” | Shivalik College of Engineering, Dehradun. | Feb. 07-08, 2024 |
| 2. | One Day Workshop on “Design for Sustainability” | National Institute of Design, Haryana. | September 14, 2023 |
| 3. | Two Days Workshop on “Design Thinking and Product Detailing” | Punjab Engineering College (PEC), Chandigarh. | Aug 25-26, 2023 |
| 4. | Workshop on “Innovative Design: Ideation to Realization” | Roorkee College of Engineering, Roorkee. | May 25, 2023 |
| 5. | A Two Weeks National workshop on “Medical Device Design: Emerging Design, Innovation and Technology (EDIT)” | Across India | May 12-23, 2023 |
| 6. | Workshop on “Innovative Design: Ideation to Realization” | Shivalik College of Engineering, Dehradun. | September 30, 2022 |
| 7. | Workshop on “Innovative Design: Ideation to Realization” | Shivalik College of Engineering, Dehradun. | September 29, 2022 |
| 8. | Five Day Faculty Development Programme on “Product and Process Design for Sustainable Manufacturing” | Across India | Sept 23 – 27, 2022 |
| 9. | Five Days Workshop on “Pragmatic approach towards Innovations in Product Design and Manufacturing” | Across India | July 04-08, 2022 |
| 10. | Workshop on “Innovative Design: Ideation to Realization” | Graphic Era Hill University, Dehradun. | June 08, 2022 |
| 11. | Five Day Faculty Development Programme on "Design for Excellence: A Step Towards Innovation" | Across India | Sept 26 – 30, 2021 |
| 12. | Five Day Faculty Development Programme on "Product and Process Innovation: Concepts, Protection and Commercialization" | Across India | June 21 – 25, 2021 |
| 13. | Five Days Workshop on “Understanding Product Design : A Hands-on Approach” | Across India | June 17-21, 2019 |
| Sponsored by AICTE, MOE. | | | |
| 14. | Innovative Products: Conceptualization to Commercialization | Across India | 25- 29 June, 2018 |

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|---|---|---|------------------|
| 15. | Make in India: Dreams to Reality | Across India | 3-14 Jan., 2017 |
| 16. | Finishing Machining: A State-of-the Art | Across India | 2-6 Sept., 2013 |
| 17. | A Novel Approach to Processing of Green Composites | Across India | 9 March, 2013 |
| 18. | Manufacturing Excellence Through Quality Assurance | Across India | 09-13 July 2012 |
| 19. | Advanced Materials And Manufacturing | Across India | 20-22 Jan. 2012 |
| 20. | Processing Challenges And Newer Manufacturing Methods | Across India | 25-29 June 2011 |
| 21. | Advanced Materials and Manufacturing | Across India | 14-18 June 2010 |
| 22. | Composites: Design and Manufacturing | Across India | 07-11 July 2008 |
| 23. | Advanced Processing of Composite Materials | Across India | 24-28 July 2006 |
| Sponsored by EICT Academy, MEiTY | | | |
| 24. | Computer Based Product Design and Manufacturing | Tula's Institute, The Engineering and Management College Dehradun | 09-13 Dec, 2017 |
| 25. | Computer Based Product Design and Manufacturing | National Institute of Technology Uttarakhand | 09-13, Feb, 2018 |

List of Annexure

- Annexure I : Details of Ph.D Theses supervised
- Annexure II : Details of M. Tech. Theses supervised
- Annexure III : Details of Research Publications in Journals
- Annexure IV : Details of Research Publications in Conferences
- Annexure V : Details of Major Sponsored Projects
- Annexure VI : Details of Major Consultancy Projects

Annexure I

Details of Doctoral Theses Supervised/Supervising

| COMPLETED | | | | |
|-----------|-------------------------|------|---|----------------------------|
| S. No. | Name | Year | Topic | Co-Supervisor |
| 1 | Aditi Mahajan | 2024 | An Intelligent Model of Process Selection For Sustainable Composites | Prof. Navneet Arora |
| 2 | Deepak | 2024 | Experimental Investigation on Bolted Joints In Natural Fiber Based Composites | --- |
| 3 | Tejas Pramod Naik | 2024 | Microwave Processing of Sustainable Natural Fiber Reinforced Thermoplastic Composites | Prof. Apurbba Kumar Sharma |
| 4 | Sandeep Gairola | 2024 | Development and Flammability Behavior of Forest/Crop Residue Based Polymeric Composites | Prof. Shishir Sinha |
| 5 | Ram Singh | 2023 | Fusion Welding of Natural Fiber Based Thermoplastic Composites | Prof. A.K. Sharma |
| 6 | Jayant Kumar | 2022 | Joining Behaviour of Natural Fiber Reinforced Thermoset and Thermoplastic Composites | --- |
| 7 | Kassahun Gashu Melese | 2021 | Experimental Investigation on Joining of Natural Fibre-Based Composite Materials | --- |
| 8 | Ujendra Kumar Komal | 2020 | Processing Techniques And Degradation Behavior of Sustainable Polymeric Composites | --- |
| 9 | Manish Kumar Lila | 2019 | Processing of Short Natural Fiber Reinforced Polymer Composites | --- |
| 10 | Ravinder Kumar | 2018 | Micro Electric Discharge Machining of Difficult-to- Machine Materials | --- |
| 11 | Saurabh Chaitanya | 2017 | Studies on Short Fiber Reinforced Biocomposites | --- |
| 12 | Temesgen Berhanu Yallew | 2016 | Characterization and Machinability Study of Natural Fiber Reinforced Composites | Prof. Pradeep Kumar |
| 13 | Harish Sharma Akkera | 2015 | Synthesis and Characterization of Ni-Mn-X (X: In, Sb) FSMA Thin Films | Prof. Davinder Kaur |
| 14 | Kishore Debnath | 2015 | Machining Behavior of Fiber-Reinforced Polymer Composites | Prof. Akshay Dvivedi |
| 15 | Abhishek Singh | 2013 | Investigation on Electro Discharge Drilling and Hole Grinding of Metal Matrix Composites | Prof. Pradeep Kumar |
| 16 | Pramendra Kumar Bajpai | 2013 | Development and Characterization of Natural Fiber Reinforced Composites | Prof. Jitendra Madaan |
| 17 | Sarbjit Singh | 2013 | Primary and Secondary Processing of Metal Matrix Composites | Prof. Akshay Dvivedi |
| 18 | Vikas Dhawan | 2013 | Development of Intelligent Knowledge Base for Machining of Composites | Prof. Sehijpal Singh |
| 19 | Pawan Kumar Rakesh | 2012 | Secondary Processing of Polymer Matrix Composites | Prof. Dinesh Kumar |
| 20 | Sant Ram Chauhan | 2011 | Development, Characterization, Friction and Sliding Wear Response of Vinylester Based Hybrid Composites | Prof. Anoop Kumar |
| 21 | Akshay Dvivedi | 2008 | Electric Discharge Machining Of Al 6063-SiC MMC Produced by Stir Casting Process | Prof. Pradeep Kumar |

| ONGOING | | | | |
|---------|----------------------|-----------|---|----------------------------|
| S.No. | Name of Student | Reg. Year | Broad Domain of Research Work | Co-Supervisor |
| 1. | Pranjal Gupta | 2019 | Investigation on Drilling of Metallic Materials Using Microwave Energy | Prof. Apurbba Kumar Sharma |
| 2. | Binaz V | 2019 | Experimental Investigation on Machinability of Sustainable Composites | - |
| 3. | Prabhash K. Jha | 2019 | Machining Behavior of Al-based in-situ Metal Matrix Composites | Prof. P.K. Jha |
| 4. | Karri Santhosh Kumar | 2021 | Environmental Aging and Biodegradability Study of Bio composites | - |
| 5. | Nipun Gupta | 2021 | Analysis of Low Velocity Impact Damage in Sandwich Composite Structure | - |
| 6. | Pinki Kumari | 2021 | An Exploration on Natural Fiber For Eco-Friendly Product Development. | - |
| 7. | Yashpal | 2021 | Joining of Natural Fiber Based Composite Materials | - |
| 8. | Sandeep Kumar | 2022 | Development of Natural Fiber Based Composite Material For Electrical Insulation in High Voltage Electric Machines | - |
| 9. | Rahul Sharma | 2022 | Study on PLA Based Bio Degradable Composite for Orthopedic Applications | Prof. Kaushik Pal |
| 10. | Anjali Kesarwani | 2023 | Processing of Sustainable Composites | -- |
| 11. | Chandraveer Singh | 2023 | Processing of Natural Fiber Reinforced Composites using Unconventional Energy Sources | -- |
| 12. | Sreehari S. | 2023 | Conceptualization, Design and Development of Harvesting Strategies for Coffee | Prof. Bibhuti Ranjan |
| 13. | Satyendra Tiwari | 2023 | Additive Manufacturing / Composite Materials | Prof. Varun Sharma |
| 14. | Raj Kumar | 2024 | Sustainable Product Design and Development | Prof. Apurbba Kumar Sharma |
| 15. | Pankaj Phulara | 2024 | Completing Course Work | Prof Shishir Sinha |

Annexure II

Details of Masters Theses Supervised

| S. No. | Title | Year | Name | Co-supervisor |
|--------|--|------|--------------------------|--------------------------------|
| 1 | Defect Detection in Wire Arc Additive Manufacturing Through Real Time Current Monitoring | 2024 | Sivaram N | Prof Varun Sharma |
| 2 | Design and Development of Auxetic Meta-Materials | 2024 | Shailesh Ravindra Bankar | Prof Varun Sharma |
| 3 | Development of Predictive Maintenance Strategy using Digital Twin | 2024 | Anant Om | Prof A.K. Sharma |
| 4 | Interactive Learning Platform for Fostering Creativity | 2024 | Manthan Vyas | Prof Saptarshi Kolay |
| 5 | Design of a Usability Framework: Female Focused Mobile Safety Applications | 2024 | Ritika Kiran Madne | Prof Sonal Atreya |
| 6 | Optimizing the DaaS User Interface with Visual Feedback | 2024 | Shikha Chourasia | --- |
| 7 | Menstrual Cycle Awareness through Board Game | 2024 | Kushagr Singh Chauhan | Prof Smriti Saraswat |
| 8 | Processing of Natural Fiber Polymer Matrix Composites | 2023 | Gajendra Singh | Prof. Sham Sundar Ravindranath |
| 9 | Conceptualizing and Designing a Space Capsule for Space Engineering | 2023 | Gaikwad Sanket Dnyandeo | Prof. Abinash Kumar Swain |
| 10 | Building Interactive Education, Communication and Information System for Community Interaction Towards Rural Sanitation, Hygiene and Well-Being. | 2023 | Alok Kachhap | Prof. Manish Kumar Asthana |
| 11 | Machine Learning Model for Predicting Mechanical Properties of Natural Fiber Composite Materials | 2022 | Sagar Kumar Ratre | |
| 12 | Finite Element Analysis of Joints in Fiber Based Composites | 2021 | Kunal Ameta | |
| 13 | Joining Behaviour of Natural Fiber Reinforced Recycled PP Composites | 2020 | Jaydip K. Vadhel | |
| 14 | Conceptualization, Design and Development of Non-structural Composites with Waste Materials | 2019 | Anjali Kesarwani | |
| 15 | Design and Development of Bamboo/ Jute/ PLA Biodegradable Composites | 2019 | Pawan Rajani | |
| 16 | Microwave Welding of Polymer Matrix Composites | 2019 | Ravi Saukta | |
| 17 | Recyclability Analysis of Green Composites | 2018 | Anubhav Kumar | |
| 18 | Composting Behavior of Natural Fiber Reinforced Thermoplastic Composites | 2018 | Dharmendra Kumar | |
| 19 | Effect of Ceramic Based Coatings on Steel Welds | 2017 | Sonu Kanwal | Prof. Manas Mohan Mahapatra |
| 20 | Micro Electric Discharge Drilling in Carbon Fiber Reinforced Polymer Composites | 2017 | Ankita Kumar | |
| 21 | Mechanical Behavior of Green Composites used for Sustainable Structures | 2017 | Kartikeya | |

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|----|--|------|--------------------------------|----------------------------|
| 22 | Cold Mould Processing and Characterization of Short Fiber Reinforced Composites | 2017 | Sandeep Chaudhary | Dr. Dinesh Kumar |
| 23 | Effect of Fiber Characterization on Mechanical Behavior of Composites | 2017 | Anurag Singh Kachhwaha | |
| 24 | Micro-EDM of Hard to Cut Materials | 2016 | Pramod Kumar Agrawal | Dr. Akshay Dvivedi |
| 25 | Parametric Investigation and Optimization of Near Dry EDM | 2016 | Kuldeep Chaudhary | Dr. Akshay Dvivedi |
| 26 | Studies on Electric Discharge Machining of Metal Matrix Composites | 2015 | Kamaljit Singh | Dr. Akshay Dvivedi |
| 27 | Comparative Analysis of Polymer Matrix Composites Processed by Microwaves and Compression Molding, 2015, | 2015 | Prag Sharma | Dr. Apurbba Kumar Sharma |
| 28 | Experimental Investigation in Fabrication of Micro-Channels by using Electric Discharge Machining | 2015 | Vichare Jaychandra Chandrakant | Dr. Akshay Dvivedi |
| 29 | Machining of Hard to Cut Materials using ECDM | 2015 | Sachin Baghel | Dr. Apurbba Kumar Sharma |
| 30 | Advanced Composite Material for Earthquake Resistant URM Building | 2014 | Dipali Jindal | |
| 31 | Conceptualization, Design and Development of Injection Molding Process for FRPs | 2014 | Manish Kumar Lila | |
| 32 | Conceptualization and Development of Low Cost Natural Fiber Reinforced Polymer Composite | 2014 | Fanindra Kumar | Dr. Sanjay K. Sharma |
| 33 | Drilling of Metal Matrix Composite: A Finite Element Approach | 2013 | Vikas Kumar Doomra | Dr. Dinesh Kumar |
| 34 | Machinability Studies on Aluminum Based Metal Matrix Composites | 2013 | Rohit Singh | Dr. Pradeep Kumar Jha |
| 35 | Electric Discharge Hole Grinding in Metal Matrix Composites | 2013 | Ravinder Kumar | Dr. Dinesh Kumar |
| 36 | Development and Characterization of Natural Fiber Reinforced Composites | 2013 | Deepak Varshney | Dr. Dinesh Kumar |
| 37 | Development and Characterization of Sustainable Polymeric Composites using Microwaves | 2013 | Mali Akshay Atul | Prof. Apurbba Kumar Sharma |
| 38 | Design and Development of a Ultra-Light Weight Prosthetic Leg | 2012 | Gagandeep Singh Bedi | Prof. Dinesh Kumar |
| 39 | Prediction of Forces and Damage in Machining of Composites using Artificial Intelligence | 2012 | Hitesh Sharma | Prof. Dinesh Kumar |
| 40 | Development and Characterization of Natural Fiber Reinforced Thermoplastic Composites | 2012 | Anil Sharma | Prof. Apurbba Kumar Sharma |
| 41 | Microwave Processing of Partially and Fully Green Composites | 2012 | Sabir Ali | Prof. Apurbba Kumar Sharm |
| 42 | Development of Hybrid Process for Secondary Processing of Metal Matrix Composites | 2012 | Aditya Pal Yadav | Prof. Akshay Dvivedi |
| 43 | A Comparative Investigation of Adhesively Bonded and Temporarily Fastened C2omposite Joints | 2011 | Harpreet Singh | Prof. Pradeep Kumar |

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| 44 | Microwave Joining of Polymeric Matrix Composites | 2011 | D. Malik | Prof. Pradeep Kumar |
| 45 | Mechanical Behavior of FRP Laminates with Drilled Holes | 2011 | Manish Kumar Niranjan | Prof. Jitender Madaan |
| 46 | Design and Development of Drill Point Geometry for Damage Free Holes in FRP Laminates | 2011 | Rahul Mahajan | Prof. Jitendra Madaan |
| 47 | Some Investigations on Joining of AA-6061 and Al Based MMC's | 2011 | Pawan Kumar | Prof. Navneet Arora |
| 48 | Behavior of Closed-Cell Aluminum Foam under Impact Loading as energy Absorber | 2010 | Vaidya Sudarshan Vishnurao | Prof. Apurbba Kumar Sharma |
| 49 | Investigation of the Mechanical Behavior of MMCs using Finite Element Method | 2010 | Tonge Pradeep Vasant | Prof. Pradeep Kumar |
| 50 | Drilling of Fiber Reinforced Plastics using FEM Approach | 2010 | Vikas Sharma | Prof. Jitendra Madaan |
| 51 | Forming of Polymer Matrix Composites: A Finite Element Approach | 2010 | Sutar Prasad Laxman | Prof. Jitender Madaan |
| 52 | Modeling and Simulation of the Deboning Behavior of Wire Reinforced Aluminum Matrix Composites | 2009 | Shashi Bhushan | Prof. Pradeep Kumar |
| 53 | Behavior of Polymer Matrix Composites under Ballistic Impact | 2009 | Sunil Kumar | Prof. Apurbba Kumar Sharma |
| 54 | Damage Behavior of Honeycomb under Impact Loading | 2009 | Gharge Milind Kumar M. | Prof. Apurbba Kumar Sharma |
| 55 | Investigation of the Adhesively Bonded Composite Joints using FEA | 2009 | P.L. Anand | Prof. Pradeep Kumar Jha |
| 56 | Analysis of Buckling Performance of Laminated Cylindrical Shell With Cutout | 2008 | Abhishek Pyasi | Prof. Pushparaj Mani Pathak |
| 57 | Investigation of the Effect of Interfacial Characteristics on the Mechanical Behavior of Metal Matrix Composites | 2008 | Pradeep Kumar | Prof. Pradeep Kumar |
| 58 | Numerical Simulation of Low Velocity and Ballistic Impact on Polymer Composite Laminated Structures | 2008 | D.S. Gupta | Prof. Apurbba Kumar Sharma |
| 59 | Investigation of the Effect of Process Parameters on the Surface Quality of High Speed Steel (T1) in Powder Mixed EDM | 2008 | Deepak Bora | Prof. Pradeep Kumar |
| 60 | Process Parametric Study of Machining of Metal Matrix Composite by EDM Process, 2007, | 2007 | Saurabh Kumar Singh | Prof. Pradeep Kumar |
| 61 | Process Parametric Study of Machining of Metal Matrix Composite by USM/D Process [Ultrasonic Machining/Drilling] | 2007 | Prateek Kala | Prof. Pradeep Kumar |
| 62 | Investigation of the Machining Characteristics of GFRP laminates | 2007 | A. Singh | Prof. S. Singh |

Annexure-III

Details of Selected Research Publications in Journals

(for detailed list, visit: <https://scholar.google.com/citations?hl=en&user=-O4pphgAAAAJ>)

International Journals

- [1] KS Kumar, **I Singh**, Effect of gamma-ray irradiation on the mechanical, thermal, and morphological behavior of sisal fiber/bio-PBS composites, *Construction and Building Materials*, 450, 138703, 2024
- [2] R Sharma, N Mehrotra, **I Singh**, K Pal, Development and characterization of PLA nanocomposites reinforced with bio-ceramic particles for orthognathic implants: Enhanced mechanical and biological properties, *International Journal of Biological Macromolecules*, 136751, 2024
- [3] G Singh, S Gairola, **I Singh**, Mechanical, thermal, and flammability behavior of chitosan-modified date palm leaf-based polypropylene composites, *Biomass Conversion and Biorefinery*, 2024
- [4] B Varikkadinmel, **I Singh**, Fracture behaviour analysis of sustainable basalt-reinforced polymer composites subjected to thermal cycling and open holes, *Engineering Failure Analysis*, 163 (Part A), 108481, 2024
- [5] P Gupta, AK Sharma, **I Singh**, Plasma formation and material removal characteristics in microwave-metal discharge-based machining of AISI 304 stainless steel, *Journal of Manufacturing Processes*, 124, 1159-1179, 2024
- [6] B Varikkadinmel, D Kaushik, A Mahajan, I Singh, Machinability of Basalt/PBS sustainable composites: a comprehensive experimental analysis, *Materials and Manufacturing Processes*, 2024
- [7] R Sharma, N Mehrotra, **I Singh**, K Pal, Bioceramic Filled PLA Based Nanocomposites for Biomedical Application: An Experimental Investigation, *Ceramics International*, 50 (16), 28662 – 28681, 2024
- [8] TP Naik, S Jaiswal, **I Singh**, AK Sharma, A Joshi, Design and Development of a Pine Needle Briquetting Machine for the Uttarakhand Region of India, *Mechanics of Advanced Composite Structures*, 2024
- [9] D Kaushik, **I Singh**, Comparative assessment of failure in single shear lap joints fabricated using various joining techniques, *Engineering Failure Analysis*, 162, 108332, 2024
- [10] K Santhosh Kumar, D Kaushik, **I Singh**, Hydrothermal aging and soil biodegradation characteristics of biopolymer based sustainable composites, *Journal of Reinforced Plastics and Composites*, 07316844241265276, 2024
- [11] RS Rana, J Kumar, **I Singh**, AK Sharma, Comparative analysis of drilled and molded holes in short natural fiber reinforced composites, *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications*, 238 (03), 493-503, 2024
- [12] H Sharma, S Gairola, JP Misra, **I Singh**, Epoxy composite dust reinforced novel polypropylene composites: An eco-friendly approach toward sustainable resource management, *Polymer Engineering & Science*, 2024
- [13] A Mahajan, S Gairola, **I Singh**, N Arora, Optimized random forest model for predicting flexural properties of sustainable composites, *Polymer Composites*, 2024; 45(12): 10700-10710
- [14] K.S. Kumar, S. Gairola, **I. Singh**, Waste Coffee Silverskin as a potential filler in sustainable composites: Mechanical, thermal, and microstructural analysis, *Industrial Crops and Products*, 210, 118088, 2024
- [15] G. Kumar, P. Gupta, T.P. Naik, A.K. Sharma, **I. Singh**, Drilling of natural fiber reinforced thermoplastic composite laminates using microwave energy at 2.45 GHz, *Materials Today Communications*, 108419, 2024
- [16] N.K. Gupta, P.K. Rakesh, V. Rastogi, **I. Singh**, Process parametric optimization of fused deposition modeling for manufacturing of acrylonitrile butadiene styrene parts, *Journal of Micromanufacturing*, 25165984241228088, 2024

- [17] T.P. Naik, S. Gairola, **I. Singh**, A.K. Sharma, Microwave-assisted alkali treatment of sisal fiber for fabricating composite as non-structural building materials, *Construction and Building Materials*, 411, 134651, 2024
- [18] S. Gairola, S. Chaitanya, D. Kaushik, S. Sinha, **I. Singh**, Static and dynamic mechanical behavior of intra-hybrid jute/sisal-reinforced polypropylene composites: Effect of stacking sequence, *Polymer Composites*, 2024, <https://doi.org/10.1002/pc.28247>
- [19] B. Varikkadinmel, D. Kaushik, **I. Singh**, Effect of thermal cycling on open-hole tensile strength of sustainable composites: An experimental investigation, *Polymer Composites*, 2024; 45(4): 3169-3183. doi:10.1002/pc.27981
- [20] K.S. Kumar, S. Gairola, **I. Singh**, Sustainable polymers and sisal fibers based green composites: A detailed characterization and analysis., *Express Polymer Letters*, 17 (10), 2023
- [21] J. Kumar, Y. Singh, T. Naik, R.S. Rana, P.K. Rakesh, **I. Singh**, Adhesive joining behaviour of banana/bagasse/epoxy composites with different joint designs, *Biomass Conversion and Biorefinery*, 2190-6823, 2023, <https://doi.org/10.1007/s13399-023-04904-4>
- [22] J. Kumar, Y. Singh, P.K. Rakesh, **I. Singh**, J.P. Davim, The Impact of Hole Diameter on the Molded and Drilled Holes in Jute-Fiber-Reinforced Epoxy Composites, *Journal of Composites Science*, 7 (9), 376, 2023
- [23] P. Gupta, A.K. Sharma, **I. Singh**, Characterization and exploring antibacterial response of tungsten oxide nanoparticles synthesized using microwave-metal discharge in atmospheric air, *Ceramics International*, 49 (22), Part A, 2023, Pages 35585-35596, <https://doi.org/10.1016/j.ceramint.2023.08.237>
- [24] D. Kaushik, **I. Singh**, Analysis of drilling behavior of flax/PP composites, *Materials and Manufacturing Processes*, 1042-6914, 2023, <https://doi.org/10.1080/10426914.2023.2244051>
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Annexure-IV

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- [2] M.K. Lila, U.K. Komal, S. Chaitanya, **I. Singh***, Natural fiber reinforced composites in furniture industry: A case study. *11th Canadian – International Conference on Composites (CANCOM-2019)*, Canada, July, 2019
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Edited Books / Book Chapters

| S.No. | Title of the Book | Editor/Authors | Publisher | ISBN | Date |
|--------------|---|---|-------------------------------|----------------|-------------------|
| 1. | Primary and Secondary Manufacturing of Polymer Matrix Composites. | Kishore Debnath, Inderdeep Singh | CRC Press | 9780367884925 | December 12, 2019 |
| 2. | Advances in materials engineering and manufacturing processes. | Inderdeep Singh, Pramendra Kumar Bajpai, Kuldeep Panwar | Springer Verlag, Singapore | 978-9811543302 | May 28, 2020 |
| 3. | Trends in Materials Engineering: Select Proceedings of ICFTMM 2018. | Inderdeep Singh, Pramendra Kumar Bajpai, Kuldeep Panwar | Springer Verlag, Singapore | 978-9811390159 | July 13, 2019 |
| 4. | Advances in Engineering Design: Select Proceedings of ICOIED 2020 | Pawan K Rakesh Apurbba K Sharma Inderdeep Singh | Springer | - | February 4, 2021 |

Annexure V

| Funded Research Projects | | | | |
|--|---|------------------|------------------|--|
| Title | Funding Agency | Project Duration | Budget (in Lacs) | Partner Institutes/ Investigators |
| Design and Development of Thermally Efficient Walling Unit | NBCC India Limited | 30 months | 44.70 | Prof. Avolokita Agarwal Prof. Manish Mishra |
| Design and Development of Coffee Harvesting Machine | Central Coffee Research Institute | 2 years | 24.73 | Prof. Bibhuti Ranjan |
| Conceptualization, Design and Development of Forest –Waste based Sustainable Composite Materials | MoEF & CC (NMHS) | 3 years | 16.14 | - |
| Investigation of Formation of MW Plasma During Drilling of Metallic Materials Through in-situ Monitoring | DST (SERB) | 3 years | 46.03 | Dr. A. K. Sharma |
| A Resource Efficient Method for Producing Orthopedic Bone Plate using Microwave Energy | SPARC (MHRD) | 2 years | 67.22 | Dr. A. K. Sharma |
| Investigation of Mechanical and Environmental Properties of Bamboo Fiber Reinforced Polymer Matrix Composites Fabricated by Compression Molding and Injection Molding | AICTE (TEQIP – III) | 2 years | 11.42 | Mr. Anil Sharma |
| Hierarchically structured micro-nano pore nanocomposite membrane made of ferric oxide decorated titania activated carbon and fly-ash in carbonized epoxy resin as versatile filters for water purification | IMPRINT | 3 years | 250 | IIT Kanpur, IIT BHU, IIT Ropar, IIT Guwahati, IIT Kharagpur, IIT Madras, University of Hyderabad |
| Project approved under Design Innovation Centre, IIT Roorkee | | | | |
| DIC Ph.D. Fellowship (DIC-1267-MID) | Ministry of Human Resources Development | 3 Years | 11.64 | Dr. A. K. Sharma |

| International Collaborative Projects | | | | |
|---|--|------------------|--|--|
| Title | Funding Agency | Project Duration | Budget | Partner Countries/Institutes/ Investigators |
| Eco-Fire Resist Hybrid Composites (2018R1A6A1A03024509) | National Research Foundation of Korea, Korea | 9 years | 1.5 Million USD (for first 3 years) | India, USA, Sweden, Portugal, New Zealand, China and Japan |
| Research and Education Grant for University Consortium (RED-UC) | ASEAN University Network/SEED-Net | 30 months | USD 38,000 | India, Japan Malaysia, Indonesia |

Annexure VI

Details of Major Consultancy Projects

| S.No. | Title of the Project | Funding Agency | Amount (in Lacs) | Co-Investigators |
|-------|---|--|------------------|---|
| 1. | Advance Engineering Program for Employees of PCBL | PCBL, Kolkata | 49.80 | Prof Sandeep Garg Prof Vinay Sharma |
| 2. | Design of Fire Fighting Kits | FRI, Dehradun | 10 (Appro.) | Prof. Sonal Atreya |
| 3. | Safety Audit of Aerial Ropeways in Himachal Pradesh | Engineer-In- Chief, HPPWD Shimla | 10.62 | Prof. M.K. Pathak Prof. N.P. Pathak Prof. P. Maheshwari |
| 4. | Design Validation of 3-Phase Asynchronous Traction Motor | Titagarh Wagons Ltd. India | 11.8 | Prof. M.K. Pathak Dr. S. Upadhyay |
| 5. | Training Program on Value Engineering and Analysis | Severn Glocon Valves Pvt. Ltd. Chennai | 2.21 | --- |
| 6. | Independent Engineer for Dharamshala-McLeodganj Passenger Ropeway Project | Government of Himachal Pradesh | 17.7 | --- |
| 7. | Development of Natural Fiber Reinforced Composites | Godrej and Boyce Mfg. Co. Ltd. | 3.93 | --- |
| 8. | Design Vetting of EOT Cranes | RCC Group of Companies Gurgaon | 1.18 | Dr. S. Upadhyay |
| 9. | Development of Pipe Joints | Kanha Plastics Private Limited | 1.06 | --- |
| 10. | Feasibility Studies for Improvement of Overall Productivity of Fabrication and Painting Shops of Everest Industries Ltd | Everest Industries | 5.00 | Dr. J. Madan Dr. A. Dvivedi |

Summary of Projects Completed under NMEICT, MHRD, Government of India

| | Title | Status |
|-----------|---|-----------|
| a) | Development of Suitable Pedagogy Tools for Courses | |
| | I. Work System Design (PI) | Completed |
| | II. Principles of Industrial Engineering | Completed |
| b) | Development of NPTEL Phase-1 Courses | |
| | i) Manufacturing Processes – I | Completed |
| | ii) Industrial Engineering | Completed |
| | iii) Processing of Non-Metals (Web and Video) | Completed |
| c) | Development and Execution of NPTEL Online Certification (MOOC) Courses | |
| | i) Product Design and Development | Completed |
| | ii) Processing of Polymers and Polymer Composites | Completed |
| | iii) Operations Management | Completed |
| | iv) Work System Design | Completed |
| | v) Manufacturing Guidelines for Product Design | Completed |
| | vi) Product Design using Value Engineering | Completed |

NPTEL Online Certification Courses (MOOCs) Completed / Running

| Course Name | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--|------|------|------|------|------|------|------|------|
| 1. Processing of Polymers and Polymer Composites | ✓ | ✓ | | ✓ | ✓ | | | |
| 2. Product Design and Development | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| 3. Work System Design | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| 4. Operations Management | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5. Manufacturing Guidelines For Product Design | | | ✓ | | | ✓ | ✓ | ✓ |
| 6. Product Design Using Value Engineering | | | ✓ | | | | | |

Recorded a Series of Ten Lectures for Educational Multi-Media Research Centre on the Topic of Composite Materials. Lectures are being telecast on educational channels of Doordarshan