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### **Educational Details:**

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

### **Work Experience:**

	<b>Designation</b>	<b>Institute/University</b>	<b>From</b>	<b>To</b>
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
- 1<sup>st</sup> 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)



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

<b>S.No.</b>	<b>Name of the Workshop</b>	<b>Participating Delegates/Institutes / Agencies / Organizations</b>	<b>Date</b>
<b>Sponsored by Ministry of MSME.</b>			
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
<b>Sponsored by Design Innovation Center, NIDI, MOE</b>			
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
<b>Sponsored by AICTE, MOE.</b>			
14.	Innovative Products: Conceptualization to Commercialization	Across India	25- 29 June, 2018

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
<b>Sponsored by EICT Academy, MEiTY</b>			
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  
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**Annexure I**  
**Details of Doctoral Theses Supervised/Supervising**

<b>COMPLETED</b>				
<b>S. No.</b>	<b>Name</b>	<b>Year</b>	<b>Topic</b>	<b>Co-Supervisor</b>
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

<b>ONGOING</b>				
<b>S.No.</b>	<b>Name of Student</b>	<b>Reg. Year</b>	<b>Broad Domain of Research Work</b>	<b>Co-Supervisor</b>
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	

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



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>
- [25] R. S. Rana, J. Kumar, **I. Singh**, A. K. 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*, 2023, doi:10.1177/14644207231191618
- [26] R. S. Rana, **I. Singh**, A. K. Sharma, Ultrasonic welding of printed/molded sustainable polymer specimens with energy directors, *Ultrasonics*, 134, 107078, 2023, <https://doi.org/10.1016/j.ultras.2023.107078>
- [27] A. Mahajan, **I. Singh**, N. Arora, Data-driven analysis and prediction of tensile behavior of coir-based composites, *Materials Letters*, 348, 134719, 2023, <https://doi.org/10.1016/j.matlet.2023.134719>
- [28] R. S. Rana, **I. Singh**, A. K. Sharma, Ultrasonic welding of banana fiber based HDPE composites with energy directors, 320, *Composite Structures*, 117222, 2023, <https://doi.org/10.1016/j.compstruct.2023.117222>
- [29] S. Gairola, S. Sinha, **I. Singh**, Thermal stability of extracted lignin from novel millet husk crop residue, *International Journal of Biological Macromolecules*, 124725, 2023
- [30] H. Sharma, **I. Singh**, J.P. Misra, An initial investigation to explore the feasibility of fruit waste fillers for developing sustainable thermoplastic composites, *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications*, 237 (9), 2023, <https://doi.org/10.1177/14644207231169121>
- [31] S. Gairola, T.P. Naik, S. Sinha, **I. Singh**, Waste biomass and recycled polypropylene based jute hybrid composites for non-structural applications, *Journal of Material Cycles and Waste Management*, 25, 2063–2076, 2023
- [32] K.G. Melese, **I. Singh**, Adhesive Behavior of Sisal and Jute Composite Exposed to Three Months Cyclic Temperature Variation, *Journal of Advanced Joining Processes*, 100143, 2023

- [33] A. Mahajan, **I. Singh**, N. Arora, An integrated multi-criteria decision-making framework for the selection of sustainable biodegradable polymer for food packaging applications, *Environment, Development and Sustainability*, 2023, <https://doi.org/10.1007/s10668-023-03052-z>
- [34] P. Gupta, A. Singh, A.K. Sharma, **I. Singh**, Influence of liquid dielectric medium on microwave-metal discharge-based drilling of AISI 304 stainless steel, *Applied Physics A*, 129 (2), 150, 2023
- [35] V. Binaz, K. Deepak, **I. Singh**, Comparative assessment of cutting processes in the mechanical behavior of basalt fiber/poly (lactic acid) matrix composites, *Express Polymer Letters*, 17 (2), 2023
- [36] T.P. Naik, S. Gairola, **I. Singh**, A.K. Sharma, Microwave-assisted molding of sisal/HDPE composites: Water absorption, diffusion kinetics and tribological behavior, *Polymer Composites*, 44 (9), 2023, <https://doi.org/10.1002/pc.27556>
- [37] S. Gupta, A. K. Sharma, D. Agrawal, M. T. Lanagan, E. Sikora, **I. Singh**, Characterization of AZ31/HA Biodegradable Metal Matrix Composites Manufactured by Rapid Microwave Sintering, *Materials*, 16 (5), 1905, 2023
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## Annexure-IV

### Details of Research Publications Presented in Conferences

#### International Conferences

- [1] M.K. Lila, U.K.Komal, **I. Singh\***, Thermal post-processing of munja fiber reinforced polymer composite. *11th Canadian – International Conference on Composites (CANCOM-2019)*, Canada, July, 2019
- [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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- [6] M. K. Lila, U. K. Komal, **I. Singh**, Recyclability assessment of bagasse fiber based polyethylene composite. *International Conference and Exhibition on Reinforced Plastics (ICERP-2019)*, by FRP Institute at NESCO Centre, Mumbai. January, 2019.
- [7] U. K. Komal, M.K. Lila, **I. Singh**. Natural fiber reinforced sustainable composites for non-structural applications. *International Conference and Exhibition on Reinforced Plastics (ICERP-2019)*, by FRP Institute at NESCO Centre, Mumbai. January, 2019.
- [8] U.K. Komal, **I. Singh\***, Product Development Based on Natural Fiber Reinforced Plastics, *International Conference and Exhibition on Reinforced Plastics (ICERP-2019)*, by FRP Institute at NESCO Centre, Mumbai. January, 2019.
- [9] U. K. Komal, M. K. Lila and **I. Singh**, “Thermal and Mechanical Characterization of Hemp and Coir Fibers Reinforced PLA based Green Composites” *Third International Conference on Composite Materials and Material Engineering (ICCMME2018)*, National University of Singapore, Singapore, 26-28<sup>th</sup> January, 2018
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**Edited Books / Book Chapters**

<b>S.No.</b>	<b>Title of the Book</b>	<b>Editor/Authors</b>	<b>Publisher</b>	<b>ISBN</b>	<b>Date</b>
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

<b>Funded Research Projects</b>				
<b>Title</b>	<b>Funding Agency</b>	<b>Project Duration</b>	<b>Budget (in Lacs)</b>	<b>Partner Institutes/ Investigators</b>
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
<b>Project approved under Design Innovation Centre, IIT Roorkee</b>				
DIC Ph.D. Fellowship (DIC-1267-MID)	Ministry of Human Resources Development	3 Years	11.64	Dr. A. K. Sharma

<b>International Collaborative Projects</b>				
<b>Title</b>	<b>Funding Agency</b>	<b>Project Duration</b>	<b>Budget</b>	<b>Partner Countries/Institutes/ Investigators</b>
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**

<b>S.No.</b>	<b>Title of the Project</b>	<b>Funding Agency</b>	<b>Amount (in Lacs)</b>	<b>Co-Investigators</b>
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

	<b>Title</b>	<b>Status</b>
<b>a)</b>	<b>Development of Suitable Pedagogy Tools for Courses</b>	
	I. Work System Design (PI)	Completed
	II. Principles of Industrial Engineering	Completed
<b>b)</b>	<b>Development of NPTEL Phase-1 Courses</b>	
	i) Manufacturing Processes – I	Completed
	ii) Industrial Engineering	Completed
	iii) Processing of Non-Metals (Web and Video)	Completed
<b>c)</b>	<b>Development and Execution of NPTEL Online Certification (MOOC) Courses</b>	
	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***

<b>Course Name</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
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***