



## Apurbba Kumar Sharma, Ph.D.

**Associate Professor,  
Mechanical and Industrial Engineering  
Indian Institute of Technology Roorkee  
Roorkee – 247 667**



### General

*Apurbba Kumar Sharma*, currently an Associate Professor in the Department of Mechanical and Industrial Engineering at the Indian Institute of Technology Roorkee, Roorkee – 247 667, Uttarakhand, India, can be reached at +91-1332-285421, 9411100286 (e-mail: akshafme@iitr.ac.in, akshafme@gmail.com).

Born to **Smt. Bidhu Bala Devi** and **Shri Rajat Chandra Sharma** in Nalbari district of Assam, India, Shri Sharma possesses a simple personality and has deep interest in teaching and research. Trained in the Laboratory of **Professor R. Krishnamurthy** of IIT Madras, Shri Sharma adores nature and is a firm believer of human values. Apurbba Kumar Sharma resides in the A-101, Shivalik Apartment, I I T Roorkee campus with lovely daughters- **Natasha** (18), **Ruchira** (11) and wife **Dr. Himadri** who is working as an Assistant Professor in the School of Management, COER, Roorkee.

### Education

Degree/ Dip.	Discipline / Specialisation	Division / Grade	Year	University/ Institute
B.E.	Mechanical Engg.	First	1988	Dibrugarh University
P.G.DIP.	Instrumentation	First	1989	Gauhati University
M. Tech.	Computer Integrated Manufacturing (CIM)	8.27 (CGPA)	1996	IIT Madras
Ph. D.	Manufacturing (Surface Engg.)	--	2003	IIT Madras

## BRIEF RESUME

**Dr. Apurbba Kumar Sharma** is currently an Associate Professor in the Department of Mechanical and Industrial Engineering at IIT Roorkee, India. He was also holding the positions of Associate Dean, Academic Studies and Chairman, Institute Academic Performance Evaluation Committee in this Institute during July 2013 to April, 2017.

He has obtained his Bachelor degree from Dibrugarh University, Assam. He has subsequently obtained his Masters and Ph D degrees from I I T Madras.

Research interests of Dr Sharma include:

1. Advance Manufacturing Methods, Hybrid Processes
2. Microwave Material Processing (in particular - Microwave Drilling, Microwave Casting, Microwave joining, Microwave Cladding)
3. Surface Engineering

Dr. Sharma has EIGHT Indian Patents to his credit.

He has published more than 100 research papers in International Journals. He has also presented/published more than 120 research papers in various International and National Conferences. Dr. Sharma is also a reviewer of several reputed international journals including – Journal of Microwave Power and Electromagnetic Energy, Composites Part A: Applied Science and Manufacturing, International Journal of Metalcasting, Journal of Manufacturing Processes, Journal of Advanced Manufacturing Technology, Proceedings of the IMechE Part B: Journal of Engineering Manufacture, Proceedings of the IMechE Part E: Journal of Process Mechanical Engineering, Surface and Coatings Technology, Precision Engineering, Surface Engineering, Tribology International, Tribology Transactions, Tribology Letters and *Kovové Materiály*-Metallic Materials. He has also edited one International Conference Proceedings and he was **Guest Co-Editor** of the International Journal of Advanced Manufacturing Technology (2008) 38.

Dr. Sharma contributed one Chapter “Electrochemical Discharge Machining” **on Invitation in the Handbook** Titled: 'Design for Advance Manufacturing – Technologies and Processes' published by McGraw-Hill Education. He has also contributed three other chapters in books published by John Wiley & Sons, Inc. and Taylor and Francis Group.

Dr. Apurbba Kumar Sharma achieved **First Rank** among the Indian researchers with **9.40** Citations per paper and **65<sup>th</sup> Rank** in Top 100 Authors of IITs based on No. of Articles as reported on 'Indian Citation Index 2016', Published by Confederation of Indian Industries (CII).

He has developed a Full Web-based Video Course on “Advanced Manufacturing Processes” under the NPTEL Programme of the Government of India. He has also developed a course as the Principal Developer on “Principles of Industrial Engineering” for undergraduate students under the Pilot Phase of the National Mission Project on Pedagogic Development, Sponsored by the Ministry of Human Resources Development (MHRD), Govt. of India.

Dr. Sharma has advised/supervised **ELEVEN** Ph. D. programs and SIX others are in-progress. He has also supervised Forty Four Masters Dissertations and Twenty Eight Bachelor Dissertations.

He was working as a DAAD (Germany) Fellow in the Pulsed Power and Microwave Technique (IHM), Karlsruhe Institute of Technology (KIT), Germany.

He has completed five funded research projects, and two other projects funded by CSIR, and BRNS, Govt of India are in progress. He has also completed few consultancy works.

Dr. Sharma is associated with several professional bodies which include- Fellow of the Institution of Engineers (India), Member of American Society of Mechanical Engineers, USA, Member of Society of Manufacturing Engineers (SME), USA, Member of Global Science and Technology Forum (GSTF), Singapore, Member of Materials Research Society of India, Member of the Indian Institute of Industrial Engineers and a member of ISTE, New Delhi.

He has organized EIGHT AICTE (QIP) sponsored Short Term Courses, Four AICTE Sponsored Workshops, THREE MHRD courses and Two self-sponsored Courses.

Dr. Sharma is also representing IIT Roorkee as the Principal Member in the Pneumatic Tools Sectional Committee, PGD08 of Production and General Engineering Department at the Bureau of Indian Standards, New Delhi.

Dr. Sharma was instrumental in formulating and implementing the new Programme Structures for UG and PG Programmes at IIT Roorkee as Associate Dean (Academic Studies). He is also a member of Board of Studies of other universities as well. He has been external examiner of eighteen Ph D Theses of nine different Universities/Institutes.

Dr. Sharma has chaired several Technical Sessions in prestigious International Conferences including in ASME sponsored Manufacturing Science and Engineering Conference (MSEC) in the USA.

Dr. Sharma has is a member of the Editorial Board of the *ISME Journal of Manufacturing Sciences* published by the Indian Society of Mechanical Engineers, India.

Dr. Sharma has delivered several Expert / Invited Lectures in several Institutions/Industries of repute.

## Patent Obtained/Filed

Sl No	Title of the Patent	Investigators	Patent Number and Year	Brief Description
1.	Articles of Glazed Ceramic Composites on Metal Substrates and Method of Manufacture Thereof.	<b>Apurbba Kumar Sharma</b> and R. Krishnamurthy	<b>Indian Patent No.199106</b> Year: 31.03.2006	A new technique for glazing of plasma sprayed ceramic composite surfaces by controlled exposure of microwave radiation. Glazed surfaces reveal annihilation of spraying defects and improvement in functional properties of the deposits.
2.	A method of joining of bulk metallic materials by microwave hybrid heating.	<b>Dr A K Sharma</b> M S Srinath Dr Pradeep Kumar	Indian Patent Application No. 1994/DEL/2009 Year: 2009	A new technique for joining of bulk metallic materials by controlled exposure of microwave radiation.
3.	A method of developing metallic cladding/ coating on metallic substrates by microwave irradiation.	<b>Dr A K Sharma</b> Dheeraj Gupta	Indian Patent Application No. 527/DEL/2010 Date: 09.03.2010	A new technique for developing cladding / coating of metallic / non-metallic materials on metallic surfaces by controlled exposure of microwave radiation.
4.	A natural polymer abrasive media for the abrasive flow machining and a process for preparation thereof	<b>Dr. A K Sharma</b> Rajesh S G Venkatesh Dr Pradeep Kumar	<b>Indian Patent No. 283675</b> Date: 29.05.2017	A new product in the form of semi-solid natural polymer, which will be used as an abrasive carrier for Abrasive Flow Machining Process. It acts as a deformable stone and has good thermal stability.
5.	An improved ultrasonic abrasive flow machining and a device therefor	<b>Dr. A. K. Sharma</b> Dr Pradeep Kumar Rajesh S	Indian Patent Application No. 3578/Del/2011 Date: 09.12.2011	This invention relates to a development of new hybrid process. The developed process is capable of enhancing the performance many folds while compared with traditional AFM process. The process is capable of finishing advance materials efficiently and yields cost reduction.
6.	A method of micro-drilling with microwaves through metallic concentrator	<b>Apurbba Kumar Sharma</b> , Shantanu Das, Nitin Kumar Lautre, Titto John George, Rajesh Kumar and Pradeep Kumar	Application No.: 201621004759, February 10, 2016.	A new technology for micro-hole drilling with microwave energy. A metallic concentrator is used as the tool. The process is fast (a 02 mm thick glass plate can be drilled within 4 seconds, suitable for micro-fabrication).
7.	A device for in-situ microwave casting of metals and alloys	<b>Dr. A. K. Sharma</b> Radha Raman Mishra Mohit Choudhury Saurabh Puri	Application No.: 201611037834, November 05, 2016.	A new technology for casting process inside the Microwave applicator that has higher yield per unit processing time and less defects.
8.	A flexible device for multiple ultrasonic machining operations	Akshay Dvivedi, Manjot Singh Cheema and <b>Apurbba Kumar Sharma</b>	Application No.: 201611041640, December 06, 2016.	A novel device that enables multiple operations like Turning, Drilling, Thread cutting in a conventional Ultrasonic Machine.
9.	Mechanical safety device for thread failure in power screw based lifts	<b>Apurbba Kumar Sharma</b> Nitesh Arora Prabh Pal Singh Seerha	Recommended for Indian Patent by the IPR Assessment Committee of IIT Roorkee on Feb 23, 2018.	A novel device that prevents free-falling of the load in case thread and nut failure in any heavy lifting machine thereby ensure safety to the worker as well as other systems.

## Fellowship/Scholarship Awarded

### A. International

1. **DAAD Research Fellowship** under Faculty Exchange Programme 2011, Federal Republic of Germany.

### B. National

1. **National Merit Scholarship**, Govt. of India.

## Outline of the Self Ph. D. Work

Dr. Apurbba Kumar Sharma was involved in a Full-Time Research Program in the Mechanical Engineering Department of Indian Institute of Technology Madras, Chennai, leading to the Ph.D. Thesis on '**Microwave Glazing of Plasma Sprayed Ceramic Composite Coatings and Their Characterisation**'. The research is concerned with application of Microwave Energy for processing of ceramics/ ceramic composites. Two major aspects have been addressed- characterisation of plasma spray deposited alumina-titania ceramic composites including defects characterisation, and microwave glazing of plasma sprayed ceramic composites for defect annihilation and performance enhancement. A new approach, called MICROWAVE GLAZING has been proposed for post processing of plasma sprayed coatings. Multidisciplinary characterisation techniques have been used to characterize the coatings. Both Materials and Mechanical aspects have been explored during characterization through Structural, Chemical, Mechanical, Physical and Functional evaluation techniques. Structure-property correlation has been highlighted. The research work yielded the following:

- |  |   |           |
|--|---|-----------|
| a. Indian Patent                             | : | One       |
| b. Paper published in Journals               | : | Eight     |
| c. Papers presented/published in Conferences | : | Eighteen. |

## Research Interests

1. Advanced Manufacturing Methods, Hybrid Finishing Processes
2. Microwave Material Processing (Microwave Casting, Microwave Drilling, Microwave Joining of Similar/Dissimilar Materials, Microwave Cladding/ Coating)
3. Surface Engineering
4. Micromachining.

## Contribution in McGraw-Hill Education Handbook (International Edition)

Contributed a Chapter (Chapter 3.10) Titled “**Electrochemical Discharge Machining**” (pp. 277–290) on Invitation in the McGraw-Hill Education Handbook with following details:

Handbook Title: Design for Advance Manufacturing – Technologies and Processes.

Editor: LaRoux Gillespie *Dr. Eng., FSME, PE, CMfgE, Former President SME*

Publisher: McGraw Hill Education; 1 edition (March 13, 2017)

Language: English

ISBN10: 1259587452

ISBN13: 9781259587450

Hardcover: 624 pages

## Summary of Research Publications (Details on page 24)

SI No	Patent	Total	Present Status	
			Awarded	Registered
1.	Indian Patent	<b>08</b>	02	06

SI No	Journal / Conference	Total	Present Status	
			Published	In-press / Accepted
2.	Journal Papers	<b>104</b>	103	01
3.	International Conferences	<b>94</b>	--	--
4.	National Conferences	<b>35</b>	--	--

## Book Chapters:

S.N.	Title of publication	Title of book/book series	Authors	Publisher, Year
1.	Multicriteria Optimization of Rotary Tool Electric Discharge Machining on Metal Matrix Composite	Materials Processing Fundamentals	MS Cheema, A Dvivedi, Apurbba Kumar Sharma, S Biswas	John Wiley & Sons, Inc, 2013
2.	Investigation on Microstructural Characterization of Microwave Cladding	Processing and Properties of Advanced Ceramics and Composited IV (Ceramic Transactions, Volume 234)	D Gupta, Apurbba Kumar Sharma, G Link, M Thumm	John Wiley & Sons, Inc, 2012
3.	Microwave Processing of Polymer Matrix Composites	Primary and Secondary Manufacturing of Polymer Matrix Composites	Apurbba Kumar Sharma, S Zafar	Taylor and Francis Group, 2017

**Publication Metrics**

1.	Citations (Google Scholar)	<b>1446</b>
2.	h-index (Google Scholar)	<b>21</b>
3.	i10-index (Google Scholar)	<b>41</b>
4.	RG Score (Research Gate)	<b>32.18</b>
5.	Impact Points (Research Gate, till last update)	<b>94.09</b>
6.	Views: (Mendeley, as on June 10, 2018)	<b>41,334</b>

**Research Guidance****[A] Ph. D. Thesis Supervision (11+06)**

SI No	Title/Area of research	Name of scholar	Co supervisor, if any	Status
1.	Microwave sintering of Nano-structured alumina	<b>Shivani Gupta</b> (Jul, 2017 - )	--	In-progress
2.	Microwave drilling of metallic materials	<b>Anurag Singh</b> (Jan, 2017 - )	--	In-progress
3.	Microwave drilling of metal-based materials	<b>Gaurav Kumar</b> (July, 2015 - )	--	In-progress
4.	An Ultrasonic Micro Machining Approach to Fabricate Microchannels on Glass/Si	<b>Dungali Sreehari</b> (January, 2015 - )	--	In-progress
5.	Investigations on Retreading Tyre Supply Chain	<b>Lokesh Saxena</b> (March, 2015 - )	Dr. P K Jain	In-progress
6.	Development and characterisation of in-situ microwave casting process	<b>Radha Raman Mishra</b> (July, 2014 - )	--	In-progress
7.	Performance analysis of ECDM process while machining glass and alumina	<b>Mudimallana Goud</b> (July, 2013 - Dec, 2016)	--	Defended (Dec 12, 2016)
8.	Development of nano cladding for wear resistance	<b>Sunny Zafar</b> (July, 2013 – Aug, 2016)	--	Defended (Aug 12, 2016)
9.	Investigations on Microwave drilling of Characteristically different materials	<b>Nitin Kumar Lautre</b> (July, 2012 – Sept, 2015)	Dr. Pradeep Kumar	Defended (Sept 20, 2016)
10.	Performance Analysis of Ultrasonic Assisted Abrasive Flow Machining Process	<b>Gudipadu Venkatesh</b> (Jan, 2012 – May, 2015)	Dr. Pradeep Kumar	Defended (Sept 11, 2015)
11.	An Ultrasonic Micro Machining Approach to Fabricate Microchannels on Glass	<b>Manjot Singh Cheema</b> (July, 2011 – June, 2015)	Dr. Akshay Dvivedi	Defended (Sept 08, 2015)
12.	Fusion Joining of Advanced Materials using Microwave Hybrid Heating	<b>Amit Bansal</b> (July, 2011 – Dec, 2014)	Dr. Pradeep Kumar	Defended (May 04, 2015)
13.	Parametric studies on Micro	<b>C. S. Jawalkar</b>	Dr. Pradeep	Defended (January 31,



	ECDM of Optical glass and Ceramics	(July, 2010 – July, 2013)	Kumar	2014)
14.	Some Studies on Development of Microchannels Using Micro Ultrasonic Machining	<b>Vivek Jain</b> (July, 2010 – April, 2012)	Dr. Pradeep Kumar	Defended (June 09, 2012)
15.	Microwave Cladding of Metal-based Materials and their Characterisation	<b>Dheeraj Gupta</b> (Jan, 2009 – Jan, 2012)	--	Defended (May 22, 2012)
16.	Joining and Characterisation of Metallic Materials through Microwave Hybrid Heating	<b>M S Srinath</b> (July, 2009 – May, 2011)	Dr. Pradeep Kumar	Defended (Oct. 17, 2011)
17.	Some Studies to Enhance the Capabilities of Abrasive Flow Machining Process	<b>Rajesh S</b> (July, 2009 – Feb, 2011)	Dr. Pradeep Kumar	Defended (May 27, 2011)

**[B] Masters Thesis Supervision (Total : 45 + 03)**

SI No	Title /Area of research	Name of scholar	Co supervisor, if any	Status
1.	Erosion wear studies on aero components	<b>Jitendra Yadav</b>	--	In-Progress (2017–18)
2.	Flash Sintering	<b>Sakshi Jaiswal</b>	--	In-Progress (2017–18)
3.	A Novel design of musical flute with continuous output frequency	<b>Dhruv Narayan</b>	Dr. Akshay Dvivedi	Awarded (2016–17)
4.	An ultrasonic micromachining approach for fabrication of micromoulds	<b>Rohit Kumar</b>	Dr. Akshay Dvivedi	Awarded (2016–17)
5.	Joining of pipes by Microwave Energy	<b>Dheerendra Gamit</b>	--	Awarded (2015–16)
6.	Studies on Machining of Composite Material using ECDM Process.	<b>Debabrata Naskar</b>	Dr. Akshay Dvivedi	Awarded (2015–16)
7.	Study of Concentrator in Microwave Machining of Materials	<b>Parvej</b>	--	Awarded (2015–16)
8.	Machining of Silicon Wafers using Ultrasonic Machining	<b>Shailesh Kumar Gupta</b>	--	Awarded (2015–16)
9.	Microwave curing of Natural fiber reinforced PMCs	<b>Gaurav Kumar</b>	Dr. Inderdeep Singh	In-Progress (2015–16)
10.	Machining of hard to cut materials using ECDM	<b>Sachin Baghel</b>	Dr. Inderdeep Singh	Awarded (2014–15)
11.	Comparative Analysis of Polymer Matrix Composites Processed by Microwaves and Compression Molding	<b>Prag Sharma</b>	Dr. Inderdeep Singh	Awarded (2014–15)
12.	Parametric Investigations on Electrochemical Discharge Form Machining	<b>Khandelwal Gaurav Prakash</b>	Dr. Akshay Dvivedi	Awarded (2014–15)
13.	Some Studies on Weldability Aspects of Nitronic Steels	<b>Naveen Kumar</b>	Dr. Navneet Arora	Awarded (2014–15)

14.	Fabrication of closed microchannel using USM	<b>Saurav Acharya</b>	--	Awarded (2013–14)
15.	Processing of industrial wastes using microwaves	<b>Vaibhav Bist</b>	Dr. Pradeep Kumar	Awarded (2013–14)
16.	Machining of Al-alloy using USM	<b>Dungali Sreehari</b>	Dr. Akshay Dvivedi	Awarded (2013–14)
17.	Microwave joining of MMCs	<b>Jeevan Bist</b>	Dr. Akshay Dvivedi	Awarded (2013–14)
18.	Some studies in Rotary ECDM	<b>Faraz Ansari</b>	Dr. D B Karunakar	Awarded (2013–14)
19.	Investigation on effect of process parameters for enhancing capabilities of micro USM	<b>Sunil Kumar Maddeshia</b>	Dr. Pradeep Kumar	Awarded (2012–13)
20.	Investigation on Finishing of External surfaces using abrasive Flow Machining	<b>Tarlochan Singh</b>	Dr. Akshay Dvivedi	Awarded (2012–13)
21.	Characterisation of MMCs developed using different moulding materials	<b>Ramesh Babu Ningala</b>	Dr. P K Jha	Awarded (2012–13)
22.	Investigations on dry-sliding and erosion wear of microwave induced wear resistant surfaces	<b>Sunny Zafar</b>	Dr. Navneet Arora	Awarded (2012–13)
23.	Development and characterisation of sustainable polymeric composites using microwaves	<b>Mali Akshay Atul</b>	Dr. Inderdeep Singh	Awarded (2012–13)
24.	Studies on Fabrication of Microchannels	<b>Saurabh Swain</b>	Dr. Pradeep Kumar	Awarded (2011–12)
25.	Modeling and simulation of Ultrasonic Assisted AFM process	<b>Gaurav Arora</b>	Dr. Pradeep Kumar	Awarded (2011–12)
26.	Modeling and simulation of Microwave Joining process	<b>John George Tito</b>	Dr. Pradeep Kumar	Awarded (2011–12)
27.	Development of Green Composites using Microwave energy	<b>Sabir Ali</b>	Dr. Inderdeep Singh	Awarded (2011–12)
28.	Characterisation of sustainable composites	<b>Anil Sharma</b>	Dr. Inderdeep Singh	Awarded (2011–12)
29.	Finishing of EDMed Inconel 718 Surface through Abrasive Flow Machining	<b>Pramod Kumar Patnaik</b>	Dr. Pradeep Kumar	Awarded (2010–11)
30.	Experimental Investigation of Various Process Parameters While Machining Glass Through Micro- USM	<b>Vineet Chak</b>	Dr. Pradeep Kumar	Awarded (2010–11)
31.	Modeling and Simulation of Microwave Metal Interaction and its Validation	<b>P. Suryanarayana Murthy</b>	Dr. Pradeep Kumar	Awarded (2010–11)
32.	Development and Characterization of Jet Slurry Erosion Resistant Metallic Cladding on Austenitic Stainless Steel	<b>Prabhakar M. Bhovi</b>	Dr. Sushanta Dutta	Awarded (2010–11)
33.	Development of New Polymer Media for Abrasive Flow Machining	<b>G Venkatesh</b>	Dr. Pradeep Kumar	Awarded (2009–10)
34.	Optimization of Process Parameters in Microwave Joining	<b>Chintam Suresh Kumar</b>	Dr. Pradeep Kumar	Awarded (2009–10)



	of Metallic Materials in a Multimode Microwave Applicator			
35.	Theoretical Studies on the Material Grain Development during Severe Plastic Deformation (SPD) Process	<b>Venkata Subbarayudu Pesala</b>	--	Awarded (2009–10)
36.	Behaviour of Closed-Cell Aluminium Foam under Impact Loading as Energy Absorber	<b>Vaidya Sudarshan Vishnurao</b>	Dr. Inderdeep Singh	Awarded (2009–10)
37.	Investigation on Influence of Process Parameters of Electro Discharge Machining of Al 7075 SiC Composite	<b>Kunal Nawasagare</b>	Dr. D B Karunakar	Awarded (2009–11)
38.	Numerical Simulation of ballistic impact on polymer matrix composite material	<b>Sunil Kumar</b>	Dr. Inderdeep Singh	Awarded (2008-09)
39.	Maintenance prevention Design and equipment planning for OEE implementation	<b>Sanjit Singh</b>	Dr. Dinesh Kumar	Awarded (2008-09)
40.	Electrochemical honing of helical gears	<b>Joy Prakash Mishra</b>	Dr. N. K. Jain	Awarded (2008-09)
41.	FE analysis of honeycomb structures	<b>Milind Gharge</b>	Dr. Inderdeep Singh	Awarded (2008-09)
42.	Numerical simulation of low velocity and Ballistic impact on polymer composite Laminated structures	<b>Durga Shankar Gupta</b>	Dr. Inderdeep Singh	Awarded (2007-08)
43.	Design and analysis of Insertion mechanism and trajectory control for in-vivo robot for stomach biopsy	<b>Sreenath Reddy</b>	Dr. P. M. Pathak	Awarded (2007-08)
44.	Development of Electrochemical Honing for finish machining of spur gears	<b>Ramlal Naik</b>	Dr. N. K. Jain	Awarded (2007-08)
45.	Maintenance strategy selection	<b>Uday Devekar</b>	Dr. Dinesh Kumar	Awarded (2007-08)
46.	Modeling and dynamic analysis of biocompatible robotic arm	<b>Chandekar Bhupendra Gopal</b>	Dr. P. M. Pathak	Awarded (2006-07)
47.	Diamond grinding of Thermal spray deposits	<b>L. Deshpandulal</b>	--	Awarded (2006-07)
48.	Some studies on effect of process parameters on process performance in hybrid abrasive flow machining	<b>K. Malla Reddy</b>	Dr. Pradeep Kumar	Awarded (2006-07)

**[C] Undergraduate (B. Tech.) Dissertation Supervision (Total : 29 + 03)**

Sl. No.	Degree	Title of Dissertation	Name of student	Co supervisor, if any	Year
1.	B.Tech. (Mech.Engg.)	Quality analysis of food grains using image processing	<b>Praful Anand Anand Kumar Roopkishor Singh</b>	--	2017–18
2.	B.Tech.	Study of food & grocery	<b>Hingar Rahul Brajesh</b>	--	2017–18

	(Indl. & Prod. Engg.)	supply chain in indian context	<b>Palash Choudhary Patel Rushi B. Kumar</b>		
3.	-do-	Experimental studies for determining feasibility of microwave drilling in metals	<b>D. Roshan Ujjwal Gahlot Siddhant Sharma Manish Kumar Jangir</b>	--	2017–18
4.	-do-	Development of a customer-bid based model for pricing cab fare.	<b>Apurv Maheshwari Utkarsh Narayan Yash Gupta</b>	--	2016–17
5.	-do-	Analysis of Manufacturing Systems using Predictive Decision Model	<b>Tanmay Jain Nikhil Guria Diksha Meena</b>	--	2015–16
6.	-do-	Analysis of Facilities in the MIED, IIT Roorkee	<b>Varun Pallav Jain</b>	--	2015–16
7.	-do-	DSS for Site Selection	<b>Ashish Taneja Mohit Hemrajani Rohit Pathak</b>	--	2014–15
8.	-do-	Processing of Materials with Microwaves for Joining Applications	<b>Akash Chaudhury Mahipat Shahi Rahul Jain</b>	--	2014–15
9.	- Do -	Characterisation of microwave cast.	<b>Revti Raman Suman Kumar Suman Manu Mrinal</b>	--	2013–14
10.	- Do -	Development of microwave casting.	<b>Mohit Chaudhary Sourabh Puri</b>	--	2012–13
11.	- Do -	Characterisation of microwave sintered mechanical elements.	<b>Abhay Jain Anuj Gang Bhartendu Sirohi</b>	--	2012–13
12.	- Do -	Microwave processing of green composites	<b>Aniket Modi Himanshu Sharma</b>	Dr. Inderdeep Singh	2012–13
13.	- Do -	Development and characterisation of Microwave cladding of Inconel on stainless steel.	<b>Archana Singh Manisha Rana</b>	--	2011–12
14.	- Do -	Modeling and Simulation of Hybrid Abrasive Flow Machining (AFM)	<b>Prateek Rai</b>	--	2010–11
15.	- Do -	Automation of motion control system for Micro USM	<b>Anant Saxena Lalit Mohan Singh Meena Lokesh Gulati Manoj Meena</b>	--	2010–11
16.	- Do -	Design and Fabrication of Abrasive Jet Machine with emphasis on Nozzle Design	<b>Rohit Srivastava Sharwan Ram Kumhar Shashank Shekhar</b>	--	2009–10
17.	- Do -	Development of Copper Coating on Graphite using Microwave Field	<b>Anshul Meshram Sameer Kumar Mandal Satya Pal Singh</b>	--	2009–10

18.	- Do -	Assessment of HAZ in EDMed surface	<b>Samrat Maji Tuhin Harit Rohitash Kumar (M.E.)</b>	--	2008-09
19.	- Do -	Index of Agility in Indian Two Wheeler Manufacturing Industry	<b>V. Chabra, V. Jain</b>	--	2006-07
20.	- Do -	Fabrication and Testing of thin CFRP	<b>Kumar Pritom S. Sharma A. Agarwal</b>	Dr. I. Singh	2006-07
21.	B. E. (Mech. Engg.)	Adaptive Slicing for Effective Rapid Prototyping	<b>S. Mohan N. Chakravarthy B. Das</b>	--	2005
22.	- Do -	PC-Based Automatic Check Gate Operation System	<b>D.Nath P.P. Bora P.P. Dutta</b>	--	2005
23.	- Do -	Design of a Bamboo Shoot Peeling Cutter	<b>Indra Mohan Das Ekbal Hussain Prodhani Saurabh Bikas Borah Pallab Kumar Kalita</b>	Dr. Plabon Kakoti	2005
24.	- Do -	A Study on Rapid Prototyping Processes With Special Emphasis on Three-Dimensional Deposition Method	<b>B. Goswami B. Sharma P. P. Maut</b>	--	2004
25.	- Do -	Study of CNC Systems and development of a CNC Integrated Software	<b>K. Churanjit B. Gogoi A. Chakraborty</b>	--	2004
26.	- Do -	Design and Fabrication of a Low Cost Solar Electric Hybrid Dryer for Mushroom	<b>Rajib Kr. Singh</b>	--	1999
27.	- Do -	Design and Fabrication of a Mechanised Device for Surface Finishing	<b>A. K. Sharma M. K. Agarwal</b>	--	1998
28.	- Do -	Design and Fabrication of a Walking Robot	<b>Rana Saikia</b>	--	1998
29.	- Do -	Development of a Computerised Parts coding System : A Group Technology Approach	<b>I. Haque D. Singh T. Deka Agha J. Khan</b>	--	1997
30.	- Do -	Microstructure Study of a few Common Mechanical Elements Subjected to Dynamic Thermal Load	<b>J. Devi L.Rajkhowa</b>	--	1997
31.	- Do -	Robotic Engineering : An Overview with Solution of Direct Kinematics Problem involved in Robot Manipulator	<b>Mohan K. Taye B. Deka P. Deori</b>	Dr S M Hazarika	1994

32.	- Do -	Design Considerations of an Orifice Meter	<b>D. Chetri</b>	--	1993
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### Ph. D. Examiner

Sl No	Title of the Thesis	Name of scholar (Date of Exam)	Supervisor(s)	Institute/ University
1.	An experimental investigation on electrochemical grinding of hybrid Al/(Al <sub>2</sub> O <sub>3</sub> + ZrO <sub>2</sub> ) - MMC	Kamarur Zaman Molla (05.09.2017)	Dr. Alakesh Manna	PEC University of Technology Chandigarh, India
2.	Processing, Characterization and Mechanical Behaviour of Boron Carbide Reinforced Aluminum Metal Matrix Composites	Ritesh Raj (Thesis Evaluated)	Dr. D. G. Thakur	Defence Institute of Advanced Technology, Pune
3.	Performance Assessment of Vegetable Oil based Nano Cutting Fluids in Turning AISI 1040 Steel	Smt. Padmini R (11.07.2016)	Dr. P. Vamsi Krishna (NIT, Warangal) & Dr. K. G. Krishna Rao (JNTU)	Jawaharlal Technological University, Hyderabad
4.	Investigations on Tribological and Machining Characteristics of Aluminium Rice Husk Ash Composite	S D Saravanan (05.12.2015)	Dr. Senthil Kumar (PSG College, Coimbatore)	Anna University, TN
5.	Improving the surface properties of superalloys by electrical discharge machining process.	Anoop Kumar Singh (24.09.2015)	Dr. Sanjiv Kumar Dr. V P Singh	PEC University of Technology Chandigarh, India
6.	Surface alloying by electrical discharge machining process using powder metallurgy electrodes	Amoljit Singh Gill (24.09.2015)	Dr. Sanjiv Kumar	PEC University of Technology Chandigarh, India
7.	A Study on Tribological Behaviour of Composite Materials	Sudarashanrao K (26.08.2015)	Dr. Y S Varadarajan (NIE, Mysuru)	VTU, Belgaum
8.	Studies on Grindability of Inconel 751 with various Cooling Strategies	A S S Balan (11.07.2014)	Professor L. Vijayaraghavan	I.I.T. Madras
9.	Parametric Investigations in ECDM	S. Sathisha (07.11.2014)	Dr. Somashekhar Hiremath (IITM)	VTU, Belgaum
10.	Study of Machinability properties of Zinc-Aluminium (ZA43) alloy reinforced with SiC particulate metal matrix composites	Rajaneesh N. Marigoudar	Professor K Sadashivappa	Visveswaraya Technological University, Belgaum, Karnataka. (Bapuji Institute of Technology, Karnataka)

11.	Analysis of Bidirectional Fiber Reinforced Composites	V V Sridhara Raju (Thesis Evaluated)	Dr. V Bala Krishna Murthy Dr. J. Suresh Kumar	JNTU, Hyderabad
12.	Analysis of composite laminated plates using higher order theories with zig-zag function	T. Dharma Raju (Thesis Evaluated)	Dr. V Bala Krishna Murthy Dr. J. Suresh Kumar	JNTU, Hyderabad
13.	Tribo-performance Evaluation of Fiber Reinforced and Nano filled Composites Friction Materials	Tej Singh (Thesis Evaluated)	Dr. Amar Patnaik and Dr. B.K. Satapathy	NIT, Hamirpur
14.	Some investigations into Cylindrical Electrochemical Abrasive Machining Process	Judal Kesarabhai Bhikhabhai (29.08.2013)	Professor Vinod Yadava	NIT, Allahabad.
15.	Optimization of welding parameters for chromium base hardfacing alloy using various processes and some comparative studies on wear characteristics	K.M. KENCHI REDDY (21.06.2013)	Dr. C. T. Jayadeva	Visveswaraya Technological University, Belgaum, Karnataka. (Adichunchanagiri Institute of Technology Chikmagalur -577102)
16.	Optimal path planning for mobile robots in off-line & on-line situations	P. Raja (02.10.2012)	Dr. S. Pugazhenth	SASTRA University, Thanjavur, Tamil Nadu – 613 401, India
17.	Optimization of operation sequencing in computer aided process planning using hybrid S-GENSAT algorithm	Nallakumarasamy G. (03.01.2012)	Dr. P. S. Srinivasan	Anna University, Chennai, Tamil Nadu – 613 401, India
18.	Optimization of work piece location and machining parameters for hexapod machine tool	S. Muruganandam (21.09.2009)	Dr. S. Pugazhenth	SASTRA University, Thanjavur, Tamil Nadu – 613 401, India

### International Journal Reviewer / Editorial Board Member

A.	Reviewer (Journal)
1.	Journal of Microwave Power and Electromagnetic Energy (Taylor & Francis)
2.	Composites Part A: Applied Science and Manufacturing
3.	Journal of Alloys and Compounds (Elsevier)
4.	Applied Surface Science (Elsevier)
5.	Journal of Manufacturing Processes (SME)
6.	Journal of Tribology (ASME)
7.	International Journal of Metalcasting (Springer)

8.	Tribology International (Elsevier)
9.	Tribology Transactions (Taylor & Francis)
10.	Tribology Letters (Springer)
11.	Precision Engineering (Elsevier)
12.	International Journal of Metal Casting (American Foundrymen Society, USA)
13.	Journal of Testing and Evaluation (ASTM)
14.	Kovové Materiály - Metallic Materials
15.	Surface Engineering (Taylor & Francis)
16.	Proceedings of the IMechE Part B: Journal of Engineering Manufacture (Sage)
17.	Proceedings of the IMechE Part E: Journal of Process Mechanical Engineering (Sage)
18.	International Journal of Advanced Manufacturing Technology (Springer)
19.	Surface & Coatings Technology (Elsevier)
20.	Indian Journal of Engineering & Material Sciences (NISCAIR)
21.	Sadhna (Springer)
22.	Transaction of the Indian Institute of Metals
<b>B.</b>	<b>Guest Co-Editor of International Journal</b>
1.	International Journal of Advanced Manufacturing Technology (2008) 38.
<b>C.</b>	<b>Editorial Board Member</b>
	ISME Journal of Manufacturing Sciences, published by the Indian Society of Mechanical Engineers, New Delhi.
<b>D.</b>	<b>Editorial Board Member (International Conference Proceedings)</b>
1.	Jointly Edited the Proceedings of the First International and 22 <sup>nd</sup> AIMTDR Conference held at IIT Roorkee, 2006

## Other International Recognition

<b>A.</b>	<b>Who's Who</b>
1.	Selected as one of the Biographees of The Marquis <b>Who's Who in the World</b> in the 27 <sup>th</sup> Edition (2010).

## Session Chair

1.	Chaired a Technical Session on Non-Traditional Processing of Advanced Material Processing Track in the <b>ASME 2013 International Manufacturing Science and Engineering Conference (MSEC2013)</b> , June 10-14, 2013, Madison, Wisconsin, USA.
2.	Chaired a Plenary Session and a Technical Session in the <b>International Conference</b>



	<b>on Nanotechnology: Ideas, Innovations and Initiatives (ICN: 3I–2017)</b> organised by the Department of Mechanical and Industrial Engineering, IIT Roorkee, Roorkee, India on December 06, 2017.
3.	Chaired a Parallel Technical Session in the <b>International Conference on Processing and Fabrication of Advanced Materials (PFAM–2014)</b> organised by the Department of Mechanical and Industrial Engineering, IIT Roorkee, Roorkee, India on December 05, 2015.
4.	Co-chaired a Plenary session in the <b>International Conference on Advanced Materials and Processing (ICAMP – 2011)</b> held at the R M K Engineering College, Chennai (TN) with Professor L. Vijayaraghavan, Mechanical Engineering Department, IIT Madras, Chennai, India on December 19, 2011.
5.	Chaired a Parallel Session in the <b>National Conference on Emerging Challenges for Sustainable Business – 2012</b> organised by the Department of Management Studies, IIT Roorkee, Roorkee, India on June 01, 2012.

## Research Papers Presented Outside India

Sl No.	Title of the Research Paper	Programme	Date (Duration)	Venue
1.	An ANN Approach for Prediction of Wear Behaviour of WC-12Co Nanostructured Microwave Clad	International Tribology Conference (ITC 2015)	Sept. 16 – 20, 2015	Tokyo University of Science, <b>Tokyo, Japan</b>
2.	Experimental investigations on micro channeling through ECDM using different electrolytes	ASME 2013 International Manufacturing Science and Engineering Conference (MSEC2013)	June 10-14, 2013	Madison Convention Centre, Wisconsin, organized by University of Wisconsin at <b>Madison, USA.</b>
3.	Investigations on microstructural characterization of microwave composite clads on austenitic stainless steel	2 <sup>nd</sup> Annual International Conference on Materials Science, Metal & Manufacturing (M3 2012)	November 19-20, 2012	Hotel Fort Canning, <b>Singapore</b>
4.	Micromachining with ECDM: Research potentials and experimental investigations	International Conference on Mechanical, Industrial, and Manufacturing Engineering (ICMIME 2012)	January 15-17, 2012	Geroldswil Swiss Hotel, Geroldswil, Zurich, <b>Switzerland.</b>
5.	Investigation on Sliding Wear Performance of WC10Co2Ni Cladding Developed Through Microwave Irradiation	International Conference on Wear of Materials (WOM 2011)	05.04.2011 (April 03 – 07, 2011)	Sheraton Society Hill, One Dock St, Philadelphia, PA 19106, <b>United States of America (USA).</b>
6.	Some Aspects of Surface Integrity Study of Electro Discharge Machined Inconel 718	International Conference (MATADOR 2010)	14.07.2010 (July 14 – 16, 2010)	The University of Manchester, Barnes Wallis Building Sackville Street Manchester M60 1QD, <b>UK.</b>

## Sponsored Project Handled/Proposed

Title of the Project	Name of the Funding Agency	Amounts (Rs.)	Status
Materials Joining and Drilling with Microwaves	BRNS, Mumbai (DAE, Govt. of India).	31,73,025.00	Completed
Parametric studies during machining of Glass and Metal Matrix Composite (Al-7075) using Electrochemical Discharge Machining (ECDM)	Council of Scientific and Industrial Research, New Delhi, India.	28,84,000.00	Completed
Development and Parametric Study of Ultrasonically Assisted Abrasive Flow Machining (UAAFAM) for Precision Finishing	DST, New Delhi	20,40,000.00	Completed
Parametric studies during machining of microchannels on silicon wafer using micro ultrasonic machining.	Council of Scientific and Industrial Research (CSIR), New Delhi, India.	13,00,000.00	Completed
Microwave joining of Metals	IIT Roorkee, Roorkee – 247 667.	1,00,000.00	Completed
Solar Electric Hybrid Mushroom Dryer	Assam Science Technology and Environment Council (ASTEC), Silpukhuri, Guwahati–781 003.	Rs.6000.00	Completed

## Academic Administration / Reform

1. Member, Advisory Committee, TIDES, Business Incubator, IIT Roorkee : March, 2017 onwards.
2. Associate Dean, Academic Studies, July 19, 2013 – April 26, 2017.
3. Member, Senate, IIT Roorkee : July 19, 2013 – April 26, 2017.
4. Member, Executive Committee on Senate (ECS), IIT Roorkee : July, 2013 – April, 2017.
5. Member, Institute Academic Programme Committee (IAPC) : July, 2013 – April, 2017.
6. Member, Academic Restructuring Committee, IIT Roorkee, 2013.
7. Member Secretary, Post Graduate Programme Review Committee, 2013.

8. Chairman, Institute Academic Performance Evaluation Committee, IIT Roorkee : February, 2013 – April 26, 2017.
9. Member, Intellectual Property Right Cell, IIT Roorkee, 2012 onwards.
10. Member, Department Administrative Committee (DAC), MIED, July 2014 – February, 2016.
11. Member, Departmental Academic Studies Committee (DASC), MIED, July 2012 – June 2014.
12. External Member, Board of Studies for Mechanical Engineering, Graphic Era Hill University, Dehradun, Uttarakhand.
13. Member, Departmental Research Committee (DRC), July 2010-June 2012.

### Representation in National Committee

1. Principal Member in the Pneumatic Tools Sectional Committee, PGD08 of Production and General Engineering Department at the Bureau of Indian Standards, New Delhi.

### Courses Organised

Sl No.	Title of the Course	Sponsored By	Duration	Date
1.	Make in India : Dreams to Reality	QIP, IIT Roorkee	Two Weeks	Jan 04 -14, 2017
2.	Ishan Vikas	MHRD, Govt. of India	11 Days	Dec 5-Dec 15, 2016
3.	Ishan Vikas	MHRD, Govt. of India	12 Days	June 22-Jul 03, 2016
4.	Ishan Vikas	MHRD, Govt. of India	09 Days	June 11-19, 2015
5.	Applied Research: Design and Execution	QIP, IIT Roorkee	One Week	June 15-19, 2015
6.	Microwaves in Material Processing (One-Day Workshop)	QIP, IIT Roorkee	One Day	June 20, 2014
7.	Finish Machining: A State-of-the-Art	QIP, IIT Roorkee	One Week	September 02-09, 2013
8.	Ultrasonic machining approach to fabrication of microchannels (One-Day Workshop)	QIP, IIT Roorkee	One Day	March 13, 2013
9.	A Novel Approach to Processing of Green Composites	QIP, IIT Roorkee	One Day	March 09, 2013
10.	Manufacturing Excellence through Quality Assurance	QIP, IIT Roorkee	One Week	July 09 – 13, 2012
11.	Advances in Surface Finishing Technologies with Special reference to Abrasive Flow	QIP, IIT Roorkee	One Day	February 19, 2012

	Machining			
12.	Processing Challenges and Newer Manufacturing Methods	QIP, IIT Roorkee	One Week	June 25 – 29, 2011
13.	Advanced Materials and Manufacturing	AICTE, New Delhi	One Week	June 14– 18, 2010
14.	Composites: Design and Manufacturing	AICTE, New Delhi	One Week	July 7 – 11, 2008
15.	Controlling Abrasion and Erosion in Cement Plants	Self-sponsored under CEC, IIT Roorkee	Four days	May 7 – 11, 2008
16.	Combating Wear	Self-sponsored under CEC, IIT Roorkee	One week	May 29 – June 02, 2007
17.	Advanced Processing of Composite Materials	AICTE, New Delhi	One Week	July 24 – 28, 2006

## Invited Talk

Sl No.	Title of the Lecture	Programme	Year	Institution
1.	IPR and Entrepreneurship: Realigning our thoughts	Expert Lecture in the National Conference on Intellectual Property and Entrepreneurship (NCIPE-2018), Organized by IPR Chair, IIT Roorkee	March 19, 2018	Indian Institute of Tech. (IIT) Roorkee
2.	Quality in Research Publications	Expert Lecture in the TEQIP Program	February 17, 2018	Malnad College of Engg. (MCE), Hasan
3.	Hybrid Machining - Implementations and Results	Expert Lecture in the TEQIP Program	February 16, 2018	Malnad College of Engg. (MCE), Hasan
4.	What is advance in Advance Manufacturing ?	Expert Lecture	February 10, 2018	National Institute of Technology (NIT) Uttarakhand, Srinagar
5.	Microwave Cladding : An Irradiation based Technique to deposit Composites	Expert Lecture in the Workshop on "Composite Materials in Engineering Applications: Design and Manufacturing Perspective"	January 19, 2018	Indian Institute of Tech. (IIT) Mandi
6.	Experimental investigation on in-situ microwave casting of copper	Invited Talk in Intl. Conference on Recent Advances in Materials & Manuf. Technologies (IMMT 2017)	Nov. 28-29, 2017	BITS Pilani, Dubai Campus, UAE
7.	What is Advanced in Advance Manufacturing? A case of Finish Machining through Ultrasonically Assisted Abrasive Flow Machining (UAAFMM)	Expert Lecture in the TEQIP Program	October 18, 2016	NIT, Kurukshetra
8.	Microwave Drilling : A Novel Micro-drilling	Key-Note Lecture in the National Seminar on	March 30, 2016	Graphic Era Hill University,

	Technique using Domestic Microwave Applicator	“Advance Materials and Manufacturing Technologies”		Dehradun
9.	Advanced Manufacturing with Special Reference to Hybrid Manufacturing	Key-Note Lecture in the National Workshop on : Recent Trends in Quality, Design and Production”	February 26, 2016.	Future Institute of Engineering and Technology, Bareilly, Uttar Pradesh.
10.	Intellectual Property Right and a few Patents of IIT Roorkee	Faculty Development Program	June 01, 2015	College of Engineering, Pune (CoEP)
11.	Applications of 2.45 GHz Microwaves in Micro-Drilling	Faculty Development Program	June 01, 2015	College of Engg., Pune (CoEP)
12.	Processing Challenges of Ceramic Composites and a Newer Processing Route	Quality Improvement Program for Faculty	2015 (28.2.2015)	ITS Engineering College, Greater Noida
13.	Processing of metal-based materials using 2.45 GHz microwaves with applications in joining and cladding	<b>Invited Talk, 5<sup>th</sup> International and 26<sup>th</sup> AIMTDR -2014</b>	2014 (13.12.2014)	IIT Guwahati, Guwahati
14.	Advanced Manufacturing with Special Reference to Hybrid Manufacturing	Expert Lecture	2014 (29.11.2014)	Graphic Era Hill University, Dehradun
15.	Microwaves in Material Processing	Quality Improvement Program for Faculty	2014 (31.07.2014)	GNDEC, Ludhiana
16.	Some aspects of Ultrasonic based Micromachining	Invited lecture under TEQIP	2014 (05.06.2014)	PEC University, Chandigarh.
17.	A Green approach to Processing of Green Composites	Quality Improvement Programme for Faculty	2014 (14.05.2014)	Noida Institute of Engineering and Technology (NIET), Greater Noida, India.
18.	Processing of metal-based materials using 2.45 GHz microwaves	International Colloquium Veda-Kolleg 2013	2013 (20.10.2013)	IIT Roorkee, Roorkee
19.	Processing of metal-based materials using 2.45 GHz microwaves with applications in joining and cladding	Quality Improvement Programme for Faculty	2013 (18.09.2013)	Indian Institute of Technology Kanpur (IITK), Kanpur.
20.	Micromachining: Fundamentals and developments in USM and ECDM based Techniques	Invited lecture under TEQIP	2013 (14.09.2013)	PEC University, Chandigarh.
21.	Micromachining : Concepts and Enabling Technologies with cases in Fabrication of Microchannels	Expert Lecture in the Faculty development Programme under TEQIP	2013 (06.06.2013)	PEC University, Chandigarh.
22.	Microwave Cladding: Challenges,	Quality Improvement Programme for Faculty	2013 (08.01.2013)	Noida Institute of Engineering and



	Developments and Possibilities			Technology (NIET), Greater Noida, India.
23.	Micromachining: Developments and Possibilities	Faculty Development Programme sponsored by Punjab Technical University (PTU)	2013 (04.01.2013)	Amritsar College of Technology and Engineering, Amritsar.
24.	Advanced Manufacturing: Need, Growth and Applications	Expert Lecture Series in the Mechanical Engineering Department	2011 (11.03.2011)	Seth Jai Parkash Mukand Lal Institute of Engg. and Tech. (JMIT), Radaur-135133 (Jamuna Nagar) Haryana, India
25.	Electromagnetic Energy in Material Processing: An Approach to Green Manufacturing	Plenary Speaker in the National Conference at the Ganapati Institute of Technology & Management, 2010.	2010 (12.11.2010)	Ganapati Institute of Technology & Management, Bilaspur, Haryana, India.
26.	New Paradigms in Advanced Manufacturing	Invited Talk Series in the Mechanical Engineering Department	2010 (29.10.2010)	College of Engineering and Rural Technology, Meerut, India
27.	Microwave Processing of Materials – A New Paradigm in Processing of Advanced Materials	Key Speaker in AICTE sponsored National Seminar on Advanced Manufacturing Processes	2010 (21.02.2010)	Noida Institute of Engineering and Technology (NIET), Greater Noida, India.
28.	Microwave Processing of Materials – A New Paradigm in Processing of Engineering Materials	Special Talk Series in the Mechanical Engineering Society	2009 (21.09.2009)	SASTRA University, Thanjavur, TN, India.
29.	Microwave Processing of Materials – A New Paradigm in Processing of Engineering Materials	Community Development Programme	2008 (23.05.2008)	NIT Jalandhar, India.
30.	Designing Advance Engineering Materials – Ceramics and Ceramic Composites	Community Development Programme	2008 (23.05.2008)	NIT Jalandhar, India.

### Special Seminar / Lectures Delivered

SI No.	Title of the Lecture	Colloquium / Course	Year	Institution
1.	Concurrent Engineering	FDP on Product Design and Manuf., organized by ICT Academy, IIT Roorkee	Feb. 10, 2018	National Institute of Technology (NIT) Uttarakhand, Srinagar
2.	Group Technology	-do-	-do-	-do-
3.	CIM / FMS	-do-	Feb. 10, 2018	-do-
4.	Product Design and Manuf.	-do-	-do-	-do-
5.	Concurrent Engineering	FDP on Product Design and Manuf., organized	Dec.12, 2017	Tula's Institute, Dehradun

		by ICT Academy, IIT Roorkee		
6.	Group Technology	-do-	Dec.12, 2017	Tula's Institute, Dehradun
7.	Flexible Manuf. Systems	-do-	Dec.11, 2017	Tula's Institute, Dehradun
8.	Product Design and Manuf.	-do-	Dec.09, 2017	Tula's Institute, Dehradun
9.	Manufacturing and Micromachining: Confusions and Concept	Expert Lecture	Oct. 03, 2017	Quantum School of Technology, Roorkee
10.	Defect-free Casting through In-situ Microwave Casting	AICTE Sponsored Short Term Course	July 07, 2017	IIT Roorkee
11.	Leadership and Personality Development	Ishan Vikas Program	July 01, 2017	IIT Roorkee
12.	Knowing Yourself	Ishan Vikas Program	June 23, 2016	IIT Roorkee
13.	Express Yourself	Ishan Vikas Program	June 13, 2015	IIT Roorkee
14.	Research Publication	AICTE Sponsored Short Term Course	June 19, 2015	IIT Roorkee
15.	Resource Generation and Research Funding	AICTE Sponsored Short Term Course	June 17, 2015	IIT Roorkee
16.	Quality in Research	AICTE Sponsored Short Term Course	June 16, 2015	IIT Roorkee
17.	Research and Doing Research	AICTE Sponsored Short Term Course	June 16, 2015	IIT Roorkee
18.	Microwave Processing of Materials	AICTE Sponsored Short Term Course	July 08, 2014	IIT Roorkee
19.	Microwave Joining of Materials	One-Day QIP Workshop	June 20, 2014	IIT Roorkee, Roorkee
20.	Significance of Microwaves in Material Processing	One-Day QIP Workshop	June 20, 2014	IIT Roorkee, Roorkee
21.	Advanced Manufacturing with Special Reference to Hybrid Manufacturing	Expert Lecture	November 29, 2014	Graphic Era Hill University, Dehradun
22.	Processing of metal-based materials using 2.45 GHz microwaves	International Colloquium Veda-Kolleg 2013	October 20, 2013	IIT Roorkee, Roorkee
23.	Processing of metal-based materials using 2.45 GHz microwaves with applications in joining and cladding	Quality Improvement Programme for Faculty	September 18, 2013	Indian Institute of Technology Kanpur (IITK), Kanpur
24.	Micromachining: Fundamentals and developments in USM and ECDM based Techniques	Invited lecture under TEQIP	September 09, 2013	PEC University, Chandigarh
25.	A State-of-the-art in Finish Machining : Concepts and Technologies	AICTE Sponsored Short Term Course	September 02, 2013	IIT Roorkee
26.	Micromachining : Concepts and Enabling Technologies with cases in Fabrication of Microchannels	Faculty Development Programme under TEQIP	June 06, 2013	PEC University, Chandigarh
27.	Enabling Micromachining	QIP-sponsored	13 March,	I.I.T. Roorkee

	Technologies in Fabrication of Microchannels	Workshop	2013	
28.	Microwave Heating Approach to Processing of Green Composites	QIP-sponsored Workshop	09 March, 2013	I.I.T. Roorkee
29.	Manufacturing Excellence and Quality	AICTE Sponsored Short Term Course	09 July, 2012	I.I.T. Roorkee
30.	Advanced Material Removal Processes – I	AICTE Sponsored Short Term Course	13 July, 2012	I.I.T. Roorkee
31.	Advanced Material Removal Processes – II	AICTE Sponsored Short Term Course	13 July, 2012	I.I.T. Roorkee
32.	Developments in Surface Finishing Technologies	QIP-sponsored Workshop	Feb 19, 2012	I.I.T. Roorkee
33.	Microwave Processing of Metal-based Materials: A Sustainable Approach for Development of Metallic Joints and Wear Resistant Composite Cladding	IHM-Colloquium	June 30, 2011	Institute of Pulsed Power and Microwave Tech, Karlsruhe Institute of Technology (KIT), Karlsruhe, <b>Germany</b>
34.	Developments in Materials Research and Emergence of Micromachining	AICTE Sponsored Short Term Course	14 <sup>th</sup> June, 2010	I.I.T. Roorkee
35.	Processing of Ceramic composites	AICTE Sponsored Short Term Course	15 <sup>th</sup> June, 2010	I.I.T. Roorkee
36.	Materials Processing using Electromagnetic Energy	AICTE Sponsored Short Term Course	18 <sup>th</sup> June, 2010	I.I.T. Roorkee
37.	Materials and Metallurgical Characterisation Techniques : An Overview	Continuing Education Programme	25 <sup>th</sup> May, 2010	I.I.T. Roorkee
38.	Quality in Design and Manufacturing	QIP Sponsored Short Term Course	2008	I.I.T. Roorkee
39.	Mechanical and metallurgical aspects in controlling abrasion and erosion wear	Continuing Education Programme	2008	I.I.T. Roorkee
40.	Plasma spraying and microwave glazing for performance enhancement	Continuing Education Programme	2008	I.I.T. Roorkee
41.	Characterisation of engineered surfaces	Continuing Education Program	2008	I.I.T. Roorkee
42.	Characterisation of engineered surfaces	Continuing Education Program	2007	I.I.T. Roorkee
43.	Plasma spray deposits in controlling erosion wear	Continuing Education Programme	2007	I.I.T. Roorkee
44.	An Overview of Composite Materials	QIP Sponsored Short Term Course	2006	I.I.T. Roorkee
45.	Processing of Ceramic Composites	QIP Sponsored Short Term Course	2006	I.I.T. Roorkee
46.	Ceramics and Ceramic Composites	QIP Sponsored Short Term Course	2004	I.I.T. Guwahati
47.	Tools for Intelligent	AICTE Sponsored	2001	Sri Venkateshwara

	Manufacturing	Short Term Course		College of Engineering, Chennai
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## Membership of Professional Bodies

1. Fellow, Institution of Engineers (India) (Membership No. F – 1214035).
2. Member, ASME, USA (Membership No. 100154747).
3. Member, Society of Manufacturing Engineers (SME), USA (Membership No.15716656).
4. Life Member, Indian Institution of Industrial Engineering, Mumbai (Membership No. LM9198 (99)).
5. Member, Global Science and Technology Forum, Australia.
6. Life Member, Materials Research Society of India, Bangalore, (Membership No. LMB 1621).
7. Life Member, Indian Society for Technical Education, New Delhi, (Membership No.LM25634).
8. e-Member, TMS, USA.

## Courses Developed

<b>[A]</b>	<b>National Programme on Technology Enhanced Learning (NPTEL)</b>
1.	<b>Apurbba Kumar Sharma</b> and Pradeep Kumar, “Advanced Manufacturing Processes”, 2014.
<b>[B]</b>	<b>National Mission Project on Pedagogic Development</b> (Sponsored by the MHRD)
2.	<b>Apurbba Kumar Sharma</b> , Inderdeep Singh, Pradeep Kumar, “Principles of Industrial Engineering”, 2010.
<b>[C]</b>	<b>For Post Graduate Students at IIT Roorkee (M. Tech./Pre-Ph.D.)</b>
3.	a. Friction and Wear b. Laser Material Processing
<b>[D]</b>	<b>For Undergraduate students (B.Tech./ B.E.)</b>
4.	Computer Numerical Control

## DETAILS OF RESEARCH PUBLICATIONS

(Name: Dr. Apurbba Kumar Sharma)

### List of Patents

	<b><u>Indian Patent</u> (Granted : 02, Filed : 01, Recommended : 01)</b>
1.	<b>Apurbba Kumar Sharma</b> and R. Krishnamurthy, Articles of Glazed Ceramic Composites on Metal Substrates and Method of Manufacture Thereof, Indian Patent No.199106 (563/MAS/2001), Year: 2006.
2.	<b>A K Sharma</b> , M S Srinath and Pradeep Kumar, A method of joining of bulk metallic materials by microwave hybrid heating, Indian Patent Application No. 1994/DEL/2009, Year: 2009.
3.	<b>A K Sharma</b> and Dheeraj Gupta, A method of developing metallic cladding/coating on metallic substrates by microwave irradiation, Indian Patent Application No. 527/DEL/2010, Year: 2010.
4.	<b>A K Sharma</b> , S Rajesha, G Venkatesh and Pradeep Kumar, A natural polymer abrasive media for the abrasive flow machining and a process for preparation thereof, Indian Patent No. 283675, Date: 29.05.2017.
5.	<b>Apurbba Kumar Sharma</b> , Pradeep Kumar and Rajesha S, An improved ultrasonic abrasive flow machining and a device therefor, Indian Patent Application No. 3578/Del/2011 (Date: 09.12.2011).
6.	<b>Apurbba Kumar Sharma</b> , Shantanu Das, Nitin Kumar Lautre, Titto John George, Rajesh Kumar and Pradeep Kumar, A Method of Micro-drilling with Microwaves through Metallic Concentrator, (Application No.: 201621004759, February 10, 2016). (IIT Roorkee and DAE, Govt. of India)
7.	<b>Apurbba Kumar Sharma</b> , Radha Raman Mishra, Mohit Choudhury and Saurabh Puri, A Device for in-situ microwave casting of metals and alloys. (Application No.: 201611037834, November 05, 2016.)
8.	Akshay Dvivedi, Manjot Singh Cheema and <b>Apurbba Kumar Sharma</b> , A Flexible Device for Multiple Ultrasonic Machining Operations. (Application No.: 201611041640, December 06, 2016)
9.	<b>Apurbba Kumar Sharma</b> , Nitesh Arora and Prabh Pal Singh Seerha, Mechanical safety device for thread failure in power screw based lifts, Recommended for Indian Patent by the IPR Assessment Committee of IIT Roorkee on Feb 23, 2018.

## List of Publications

<b>A.</b>	<b><u>Journal</u> (Total = 105)</b>
1.	<b>Radha Raman Mishra and Apurbba Kumar Sharma</b> , Multi-Physics Simulation of In-Situ Microwave Casting of 7039 Al Alloy inside Different Applicators and Cast Microstructure, <i>Proc IMechE Part E: J Process Mechanical Engineering</i> . (In-Press).
2.	Gaurav Kumar, <b>Apurbba Kumar Sharma</b> , Role of dielectric fluid and concentrator material in microwave drilling of borosilicate glass, <i>Journal of Manufacturing Processes</i> 33 (2018) 184–193, ( <a href="https://doi.org/10.1016/j.jmapro.2018.05.010">https://doi.org/10.1016/j.jmapro.2018.05.010</a> ).
3.	Dungali Sreehari, <b>Apurbba Kumar Sharma</b> , On form accuracy and surface roughness in micro-ultrasonic machining of silicon microchannels <i>Precision Engineering</i> , (2018), ( <a href="https://doi.org/10.1016/j.precisioneng.2018.04.014">https://doi.org/10.1016/j.precisioneng.2018.04.014</a> )
4.	<b>Apurbba Kumar Sharma</b> and Radha Raman Mishra, Role of particle size in microwave processing of metallic material systems, <i>Journal of Materials Science and Technology</i> , (2017), pp.1-15, (DOI: 10.1080/02670836.2017.1412043).
5.	Lokesh Kumar Saxena, Pramod Kumar Jain and <b>Apurbba Kumar Sharma</b> , Tactical supply chain planning for tyre remanufacturing considering carbon tax policy, <i>The International Journal of Advanced Manufacturing Technology</i> , (2018), ( <a href="https://doi.org/10.1007/s00170-018-1972-3">https://doi.org/10.1007/s00170-018-1972-3</a> ).
6.	Radha Raman Mishra and <b>Apurbba Kumar Sharma</b> , Effect of solidification environment on microstructure and indentation hardness of Al-Zn-Mg alloy casts developed using microwave heating, <i>International Journal of Metalcasting</i> , 12(2) (2018), 370–382. ( <a href="https://doi.org/10.1007/s40962-017-0176-1">https://doi.org/10.1007/s40962-017-0176-1</a> ).
7.	Radha Raman Mishra and <b>Apurbba Kumar Sharma</b> , Effect of susceptor and mold material on microstructure of in-situ microwave casts of Al-Zn-Mg alloy, <i>Materials and Design</i> , (2017), (DOI: 10.1016/j.matdes.2017.06.038) (IMPACT FACTOR: 3.997, 5-Year Impact Factor: 4.023)
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9.	Sunny Zafar and <b>Apurbba Kumar Sharma</b> , “Microstructure and mechanical properties of microwave post processed Ni coating”. <i>Journal of Materials Engineering and Performance</i> , (2017), (DOI:10.1007/s11665-017-2540-y), (IMPACT FACTOR: 1.094 (2015)).
10.	Goud, M. and <b>Apurbba Kumar Sharma</b> , “On performance studies during micromachining of quartz glass using electrochemical discharge machining”, <i>Journal of Mechanical Science and Technology</i> , 31 (3) (2017), pp.1365-1372, (DOI 10.1007/s12206-017-0236-8). (IMPACT FACTOR: 0.761 (2015))



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