

Curriculum Vitae

Prabir Sarkar, PhD

Professor, Department of Mechanical Engineering

Indian Institute of Technology (IIT) Ropar

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Co-Principal Director, Agriculture and Water Development Hub (**AWaDH**), Department of Science and Technology, Government of India (under the National Mission on Interdisciplinary Cyber-Physical Systems, NM-ICPS, IIT Ropar)

Fellow, Institute of Engineers (FIE), **Chartered Engineer** (C.Eng)

Associate Editor, *Smart and Sustainable Manufacturing Systems (ASTM)*

Background

Research and Teaching Experience

June 2025 - present	Professor , Department of Mechanical Engineering Indian Institute of Technology (IIT) Ropar , India. (Times Higher Education World University Ranking 2020 # 2 in India NIRF: 22)
Aug 2016 – June 2025	Associate Professor , Department of Mechanical Engineering Indian Institute of Technology (IIT) Ropar , India. (Times Higher Education World University Ranking 2020 # 2 in India NIRF: 22)
April 2011 - July 2016	Assistant Professor , Department of Mechanical Engineering, Indian Institute of Technology (IIT) Ropar , India. IIT Ropar, India. (Times Higher Education World University Ranking 2020 # 2 in India NIRF: 22)
May 2008 - April 2011	Postdoctoral Associate (Guest Researcher) , System Integration Division of Engineering Laboratory, National Institute of Standards and Technology (NIST) Department of Commerce, gov. USA, Gaithersburg, Maryland, USA
Nov 2007 - April 2008	Post-Doctoral Research Associate (IISc Junior Research Associate) , Centre for Product Design and Manufacturing (now Department of Design and Manufacturing) Indian Institute of Science (IISc) , Bangalore, India (Ranked #1 University in India, NIRF: 1)
Jan 2003 - Oct 2007	National Doctoral Fellow , CPDM (now Department of Design and Manufacturing) Indian Institute of Science (IISc) , Bangalore, India (Ranked #1 University in India, NIRF: 1)

Industrial Experience

March 2007 - Oct 2007	Co-founder and Managing Director , ‘ODEA solutions’ A product design and development consultancy startup
Aug 2000 – Dec 2002	Development Engineer (senior design engineer) , R&D Center, Bharat Earth Movers Limited (BEML) Public Sector Undertaking, Government of India, Kolar Gold Fields, Karnataka, India

Other roles

Aug 2020- present	Co-Principal Director of Technology Innovation HUB (TIH)- Agriculture and Water Technology Development Hub (AWADH) , Department of Science and Technology, Government of India under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS), IIT Ropar.
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Education

Jan 2003 - Nov 2007	Doctor of Philosophy (Ph.D.) , Mechanical Engineering, Indian Institute of Science (IISc), Bangalore , India. <i>Advisor:</i> Prof. Amaresh Chakrabarti. Department of Design and Manufacturing. <i>Title:</i> Development of a Support for Effective Concept Exploration to Enhance Creativity of Engineering Designers. Partially worked on an ISRO sponsored project. CGPA: 7.0/8.0 (87%) <i>[Ranked #1 university in India, NIRF: 1]</i>
July 1998 - Aug 2000	Master of Design (M.Des.) , Product Design and Engineering, Mechanical Engineering, Indian Institute of Science (IISc), Bangalore , India. CPDM. CGPA: 6.6/8 (82%) <i>[Ranked #1 university in India, NIRF: 1]</i>
July 1994 - Aug 1998	Bachelor of Engineering (B.E.) , Production Engineering, National Institute of Technology (NIT), Tiruchirappalli , Trichy. India. Percentage: 70% <i>[Rank# 9 in India, NIRF: 9]</i>
Others	
July 2025	Developing Innovative Ideas for Product Leaders (This course is part of Product Ideation, Design, and Management Specialization), University of Maryland, College Park, USA . Grade: 81%

Fellowships

2018	<i>Fellow</i> , the Institute of Engineers (India)
2005	<i>National Doctoral Fellow</i> , All India Council for Technical Education (AICTE), awarded to 50 Ph.D. scholars across India, 2005-2007.
2003	<i>MHRD fellowship</i> , Indian Institute of Science, Bangalore (IISc), 2003-2004.

Awards

2025	<i>Notable Alumni Award</i> , Indian Institute of Science (IISc), Bangalore
2020	<i>MTV Roadies Revolution Award</i> , Cash prize of INR 1 lakh awarded to the Stubble Removing Machine (SRM) inventors’ team, IIT Ropar
2015	<i>Outstanding researcher Award in Mechanical Engineering</i> , VIFFA 2015 awards, Centre for advanced research and design, Venus international foundation, India

Foreign travel and supporting grants

2024	<i>Mid Sweden University, Sweden</i> . Supported by joint Swedish Research Council (SRC) project.
2012	<i>Millersville University, USA</i> . Partially supported by Millersville University

- 2009** ASME, DETC conference, San Diego, USA. Supported by NIST travel grant
- 2007** ICED, 2007 conference, Paris, France. Travel grants from the government of India to present four papers
- Best paper awards**
- 2024** Second prize, Best Paper Presenter, my PhD student, Second Shiksha Maha Kumbh International Conference, Kurukshetra University, Kurukshetra, December 2024.
- 2024** Third prize, Best Paper Presenter, my PhD student, Second Shiksha Maha Kumbh International Conference, Kurukshetra University, Kurukshetra, December 2024.
- 2021** Best paper award, 2nd International Conference on Recent Advances in Fluid and Thermal Sciences (iCRAFT 2020).
- 2009** Top Five Best Papers, International Conference on Research in Design (ICORD 2009)
- 1997** Third Best Paper Award, National Level Technical Symposium, NIT, Kurukshetra, 1997.
- 1997** Best Paper Award, Southern India level technical symposium, RVS. College, Dindugal, 1997.

Other Honors

- 2017** Leading Educationist of India award and APJA Kalam Award for excellence, FFD.
- 2016** Biography featured in 'Top 100 Professionals 2016,' International Biography Centre, St. Thomas Place, Great Britain.
- 2016** Bharat Gaurav Award, 2016, IIF Society.
- 2016** Biography featured in the 33rd edition of Marquis Who's Who in the World

Achievements

- 2016** **Two world records.** Limca Book of Records and India Book of Records in 2016, twice. Longest ballpoint pen and Longest fountain ink pen in the world.
- 1998** All India 6th rank (99.3 percentile), Common Entrance Examination for Design (CEED).

Skillsets

Product design, design thinking, research in design, problem-solving, CNC programming, Computer-Aided Design (CAD), patent analysis, Sustainability assessment (LCA)

Research

Externally sponsored grants (total about 115 crores INR, 15.5 million USD equivalent)

Ongoing

2020-2027	Agriculture and Water Hub (AWaDH) under National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS): Technology Innovation Hubs (TIHs)
Funding source	Department of Science and Technology (DST), Gov. of India
Support	110 crores INR over five+two years (13 million USD)
Institutions	IIT Ropar
Role	Co-PI (Co-PIs: Dr. Pushpendra Singh, Dr. Prabir Sarkar, Dr. Mukesh Saini, Dr. Neelkant, Dr. Vijay Anand, Dr. Suman Kumar, Dr. Neeraj Goel) Co-Principal Director , and Domain coordinator: Stubble management and urban farming

Completed

2020- 2024	Stubble Burning: Health impacts and social perception - an explorative study for prevention [International funding]
Funding source	Swedish Research Council (SRC)
Support	7,46 000 SEK ($\approx$ 63,00 000 INR or 70,300 USD)

Institutions	IIT Ropar and Mid Sweden University
Role	Co-PI (IIT Ropar: Dr. Samaresh Bardha (HSS), Dr. Parwinder Singh (HSS), and Dr. Prabir Sarkar (ME). Foreign PI: Prof. Koustuv Dalal, Professor in Public Health Economics, Mid Sweden University, Sweden.)
2019- 2022	Micro Green Roofing
Funding source	IMPRINT- 2, MHRD, GOI and ELT India
Support	About 75 lakhs INR (58 lakhs, MHRD and 17 lakhs, ELT India) (~USD 89,300)
Institutions	IIT Ropar, IIT Kharagpur, ELT India, industry
Role	Principal Investigator (Co PI- Dr. Putul Halder, IIT Ropar and Dr. Chirodeep Bakli, IIT Kharagpur)
2017-2020	Big Data Analysis: A key to understand the Dynamics of Collaborative Knowledge Building
Funding source	Cognitive Science Research Initiative (CSRI), Department of Science and Technology (DST), India
Support	INR 14,40,600 (~USD 22,142)
Role	Co-Principal Investigator (PI, Dr. Sudarsan Iyenger)
2016-2019	Experimentation and simulation assisted enhancement of energy efficiency & pollution reduction in hand tool industries
Funding source	Department of Science and Technology (DST), India, Ministry of Micro, Small and Medium Enterprises under Uchhatar Aaviskar Yojana
Support	INR 99.58 lakhs (~USD 147,616)
Role	Co-Principal Investigator (PI, Dr. Dhiraj Mahajan)
2016-2019	Study of aesthetics in product design using eye-tracking equipment from a cognitive view
Funding source	Cognitive Science Research Initiative (CSRI), Department of Science and Technology (DST), India
Support	INR 16.26 lakhs (~USD 24,440)
Role	Principal Investigator
2014-2019	Fund for Improvement of S&T Infrastructure in Universities and Higher Educational Institutions (FIST) Program
Funding source	Ministry of Science and Technology, Government of India
Support	INR 235 lakhs (~USD 380,000)
Role	Co-Principal Investigator (PI, Prof. Harpreet Singh)
2015-2016-2017	Grant for strengthening of IPR cell
Funding source	Patent Information Centre, Punjab State Council for Science and Technology
Support	INR 0.2 lakhs/year (~USD 330)
Role	Principal Investigator/ Nodal officer
2014-2015	Grant for setting up and strengthening of IPR cell
Funding source	Patent Information Centre, Punjab State Council for Science and Technology
Support	INR 0.2 lakhs (~USD 330)

Role	Principal Investigator/ Nodal officer
2014-2017	Engineering Driven Sustainable Supply Network Design [International funding]
Funding source	Department of Science and Technology (DST), India and Engineering and Physical Sciences Research Council (EPSRC), UK
Institutions	IIT Ropar, IIM Lucknow, and University of Cambridge
Support	£ 1 million / USD 1,517,300, IIT Ropar's share: INR 48,00,000 (~USD 70,021)
Role	Co-Investigator (Prof. Jag Sarai, U Cambridge, PI, Prof. Harpreet Singh, IIT Ropar, Co-I, Dr. Ekta Singla)

Internally sponsored grants

Total: INR 1 crore

2020	Development of vertical garden under multidisciplinary agriculture research initiative Support: INR 100 lakhs (my share 14 lakhs). Role: Co-Principal Investigator
2020	Design and development of electric two-wheelers under multidisciplinary electric vehicle research initiative Support: INR 100 lakhs (my share about 20 lakhs). Role: Co-Principal Investigator
2019	Development of a machine to stop stubble burning Support: INR 11.5 lakhs. Role: Co-Principal Investigator
2013	Establishment of Design studio Support: INR 10 lakhs (~USD 18,699). Role: Co-Principal Investigator
2012	Establishment of Design research laboratory Support: INR 5.7 lakhs (~USD 11,181). Role: Principal Investigator
2011	Eye-tracking equipment (Research Grant) Support: INR 45 lakhs (~USD 67,400). Role: Principal Investigator
2011	Establishment of sustainable design and manufacturing laboratory Support: INR 49 lakhs (~ USD 120,000) Role: Co-Principal Investigator
2011	Creative sustainable product design methodology with standards compliant, and a support for measuring product sustainability in early design (Institute seed grant) Support: INR 9.8 lakhs (~USD 21,777). Role: Principal Investigator

Consultancy projects

Total: INR 18.3 lakhs (~21,700 USD)

2022-2023	Design improvement of automatic seed sowing machine 1.3 lakhs
Client	CoE Vegetables, Kapurthala (through AWaDH)
Role	Principal Investigator
2019- 2022	Micro Green Roofing 17 lakhs
Client	ELT India (under IMPRINT 2 scheme)
Role	Principal Investigator
2015	Bone alignment measuring system IIT Ropar and PGI Chandigarh joint initiative
Support	Financial expenses borne by IIT Ropar. Product developed in collaboration with Dr. Chawan, of Post Graduate Institute of Medical Education and Research (PGIMER)
Role	Principal Investigator

2015	Improved surgical cutter for plastic surgery
Support	IIT Ropar and PGI Chandigarh joint initiative
	Financial expenses borne by IIT Ropar. Product developed in collaboration with Dr. Sunil Gaba of Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh along with Dr. S. S. Padhee and Mr. Sameer Mishra.
Role	Principal Investigator

Technology transfers

2025	Stubble removing machine
	Technology transfer/licensing completed. Patent is licensed to Regenix, a company.
	Role: Co-PI and inventor
2023	Design improvement of automatic seed sowing machine
	Technology transferred to CoE Vegetables, Kapurthala through AWaDH.
	Role: Principal Investigator
2000	Rupturable disposable syringe
	Indian patent grant number: 198228. Inventors: B.Gurumoorthy, Neeraj Pal, and Prabir Sarkar.
	Technology transferred by SID, IISc, Bangalore.
	Role: Inventor

Invited Talks

2026	<i>Invited Speaker</i>, ‘Development of stubble removing Machine (SRM) and way ahead.’ Conference on “Ecological Crop Residue Management: Impacts, Challenges and Pathways to Resilience”. Institute for inclusive policy and governance, Central University of Punjab, Bathinda, May 13th 2026. <i>Institute representative</i>, State Roundtable on Scaling Next-Generation Alternative Fibres in Punjab and Haryana. JW Marriott, Chandigarh 3 Feb, 2026
2025	<i>Invited Speaker</i>, ‘Industry 4.0 and Digital Twin’. AICTE sponsored online Atal faculty Development programme on Manufacturing & Industry 4.0: Technologies and Applications. School of Engineering. Seacom skill university. 8th Dec, 2025. <i>Expert Speaker</i>, 'Smart Farming with Automation: Empowering Farmers Through Advanced Farm Equipment' in 'HARVEST: Asia-Pacific Summit on Smart & Sustainable Agriculture', NEDAC (Network for the Development of Agricultural Cooperatives in Asia and the Pacific), Unnati Cooperative, and the Northern Region S&T Cluster, PI-RAHI (Panjab University–IIT Ropar Regional Accelerator for Holistic Innovation Foundation), 21st April, IIT Ropar, India. <i>Keynote Speaker</i>, 'Sustainability standards for design for the environment.' 2nd International Conference on Product Design, Lovely Professional University, Phagwara, Punjab, India. 11th April, 2025. <i>Panelist</i>, 'Design Creativity, Innovation and Entrepreneurship.' 2nd International Conference on Product Design, Lovely Professional University, Punjab, India. 10th April, 2025. <i>Invited Speaker</i>, ‘Sustainability in design and manufacturing.’ Malaviya Mission Teacher Training Centre (MMTC) sponsored course on “Frontiers in sustainable solutions: Pioneering innovation for a greener future” by Indian Institute of Information Technology, Design and Manufacturing, (IIITDM) Kancheepuram. 3rd March, 2025.

- *Invited Speaker*, ‘Sustainability standard.’ Malaviya Mission Teacher Training Centre (MMTC) sponsored course on “Frontiers in sustainable solutions: Pioneering innovation for a greener future” by Indian Institute of Information Technology, Design and Manufacturing, **(IIITDM) Kancheepuram**. 3rd March, 2025.
- *Panel member*, Panel Discussion on Publishing Design Research, Chair - Prof. Janet Allen (Oklahoma, USA). 10th International Conference on Research into Design - ICoRD' 25, **IIT Hyderabad**, 10th January, 2025.

2024

- *Invited Speaker and Panelist*, CPDM (now DM) Silver Jubilee Talks. **Indian Institute of Science (IISc), Bangalore**, 12 Feb 2024
- *Expert speaker*, Material Innovation and Sustainability. Industrial Design Department, Chandigarh **University**, Jan 30 2024
- *Guest Lecture*, Masterclass on Design Thinking. **Hero MotoCorp** (World's largest Two-Wheeler Company), 12-Jan-2024

2023

- *Invited speaker* for an expert talk, ‘Conceptual design of cars from aesthetic point of view.’ Department of Automobile Engineering, **Chandigarh University**, 11 April 2023
- *Invited speaker* for the positional statement session, ‘Stimulus based pedagogy to understand target audience in design education.’ Future of Design Education: InFuSED23, **IISc, Bangalore**. Jointly with Kamalpreet Sandhu. 27 January 2023.

2022

- *Invited speaker* as a resource person, for "Emerging avenues of Supply Chain Logistical Drivers for Atma-Nirbhar Bharat", FDP (Faculty Development Program). Sponsored by AICTE Training And Learning (ATAL) Academy. Department of Management Studies and Department of Mechanical Engineering, **MNIT, Jaipur** (5-12.22- 16.12.22). Delivered two talks: ‘Sustainable Supply Chain’ and ‘Sustainable Supply Chain Design.’
- *Keynote Speaker*, ‘Sustainability and Eco-design.’ International Conference on Product Design **Lovely Professional University (LPU)**. 18th November 2022.
- *Panel member*, BUILD (**Boeing University Innovation Leadership Program**), cohosted by **FITT (Foundation for Innovation and Technology Transfer)**, **IIT Delhi**, 15th October, 2022.
- *Keynote Speaker*, ‘Reverse Engineering. ‘Advancements in Simulation and Experimental Techniques in Mechanical Engineering (ICASEME-2022), 12 -13th October, 2022.
- *Guest of Speaker*, Country's biggest Free Legal Classes for Startup by **Smart City Jabalpur**, “Legal Pathshala 2022”, March 2022.
- *Technical talk*, ‘Stubble burning issue in India and the development of the SRM machine’ in **Indo-Taiwan Joint Workshop on Agriculture and Water Resource Management**, Jan 19, 2022.

2021

- *Prime panelists*, round table discussion about Intellectual Property Rights and Patents on the occasion of World Intellectual Property Day on April 26, 2021. National Research Development Corporation (NRDC), an enterprise of DSIR, **Ministry of Science & Technology, Gov. of India**.
- *Invited talk*, ‘Introduction to 3D printing and Standards, Norms and Regulations for 3-D Printing.’ AICTE Training and Learning (ATAL) Academy sponsored 5-day Faculty Development Programme (FDP) on Advancement and Futuristic Trends in 3D Printing and Design, February 1-5, 2021.

2020

- *Invited Talk*, ‘Sustainable Product Design: Towards a better future.’ Five-day Short-Term Training Program (STTP) funded by TEQIP III on "Sustainable Manufacturing for Atma-Nirbhar Bharat’ **Department of Management Studies. MNIT Jaipur**, Dec 21 - 25, 2020
- *Invited talk*, ‘Standards in Design and Manufacturing.’ 8th International Conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering, Dec 19-20, 2020.

- *Technical talk*, ‘Post-harvest Stubble Removing Machine (SRM).’ Agriculture Technologies presentations facilitated by the **office of Principal Scientific Adviser, GOI** in partnership with NASSCOM Foundation. Agriculture Technology Presentations - Phase 6 Friends of the Farmers, 18 July 2020
- *Lecture*, ‘Intellectual Property Rights’ as the Chairman of IPR cell, IIT Ropar. Faculty development program (FDP) on "Research trends in science and engineering" in **Institute of Engineering & Management Salt Lake, Kolkata**, 29th July 2020.
- *Guest lecture*, ‘Approaching education related issues using creative problem solving techniques’ for faculty members of **G H Rasoni Institute of Engineering and Technology, Pune**, 6th June 2020.
- *Guest Lecture*, "Reverse engineering" for ME students of **GLA University**, April 23 2020.

2019

- *Invited talk*, ‘Sustainable Design and Manufacturing.’ 7th International Conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering, December 5-7, 2019
- *Expert talk*, ‘Product development and bio mimicry in design.’ **Chandigarh University**, 19th July 2019
- *Expert talk*, ‘Sustainability standards and standards for Industry 4.0’. One-Week Workshop on Manufacturing for Industry 4.0 under Advanced Knowledge in Nutshell (AKIN), July 15th-19th, 2019, **IIT Ropar**, 15th July 2019
- *Expert talk*, ‘Sustainability standards’ in One-Day Workshop on ‘Sustainable Manufacturing’ sponsored by: Materials and Manufacturing Panel, Aeronautics Research & Development Board. **IIT Ropar**, March 19, 2019

2018

- *Guest of Honor*, Addresses on academic collaborations. **CSIR-CMERI**, 28th Sep 2018.
- *Expert lecture*, ‘Aesthetics’ **Chandigarh University**, Oct 8th, 2018.
- *Invited talk*, ‘Creative Problem Solving Techniques for Engineering Projects.’ **MNIT Jaipur**, 13th Aug 2018.
- *Key note speaker*, ‘Biomimicry, Design Inspired by nature,’ in International conference on Futuristic Development in Mechanical Engineering. **Kautilya Institute of Technology and Engineering and School of Management (KITE-SOM), Sitapura, Jaipur, India**, Feb 21, 2018.

2016

- *GIAN speaker*, ‘Sustainability standards.’ Global Initiatives on Academic Networks (GIAN) program on Introduction to Sustainable Manufacturing at **MNIT Jaipur**, December 19-23, 2016
- *Invited speaker*, ‘Innovation and manufacturing of Medical Devices at the Design research lab of IIT Ropar.’ One Day Meet of Medical Device Innovation Cluster at **CSIO, Chandigarh**, organized by DST Centre for Policy Research, Panjab University, Chandigarh, November 12, 2016.
- *Invited speaker*, ‘Sustainable Product Design.’ Faculty Development Program on “A look into the future” being organized by Dr. SSB University Institute of Chemical Engineering and Technology, **Panjab University** under TEQIP-II (A World Bank Project), October 25, 2016.
- *Invited speaker*, ‘Understanding sustainability in pharmaceutical companies through a case study.’ Indo-US dissemination workshop on design of sustainable systems. **Indian Institute of Science, Bangalore**. 20-22 June 2016

2015

- *Guest of Honor and Expert Inaugural Lecture*, ‘Sustainability and Eco design.’ Short term training program on advances on quality management practices in industries, Mechanical Department, **National Institute of Technology, NIT, Hamirpur, HP**, 10th July, 2015
- *Expert talk*, ‘Sustainability and eco-design.’ ISTE-PTU Sponsored Faculty Development Programme on, “Emerging Trends in Mechanical Engineering (ETME-15),” **Rayat Institute of Engineering & Information Technology**, June 8, 2015.

2014

- *Panel member*, ‘The need of product design course in undergraduate study.’ International symposium on product design, **Chandigarh University**, 16 July 2014
- *Key note speaker*, ‘creative problem-solving techniques in product design.’ International workshop on creative product design, **Chandigarh University**, 15 July 2014
- *Panel member and speaker*, industry academia collaboration at **Confederation of Indian Industries (CII), Chandigarh**, 5th March 2014.

2012

- *Invited lecture*, ‘Sustainability and eco-design.’ **Lovely Professional University, Jalandhar**, 2012
- *Invited lecture*, ‘Automobile design.’ Society of Mechanical Engineers (SME), **IIT Ropar** chapter, 2012

2011

- *Invited lecture*. ‘Approaching education related issues using creative problem-solving techniques.’ Faculty development program, **Rayat Institute of Engineering and Information Technology, Ropar Campus**, July 19th, 2011

2009

- *Invited talk*, ‘Design of new products.’ **Indian Institute of Technology, Madras**, Chennai, 2009.

Research Supervision

PhD Guidance Completed (Defended and Degree Awarded)

1. **Gyanendra Singh Goindi** | *Co-supervisor: Dr. Anshu Dhar Jayal*
Title: *Investigation of Ionic Liquids as Metalworking Fluids in Minimum Quantity Lubrication Machining*
Defended: 8 November 2016 | Degree Awarded
Current Position: Professor and Dean, Department of Mechanical Sciences, Chandigarh University, Mohali
2. **Sagar Dhage** | *Co-supervisor: Dr. Anshu Dhar Jayal*
Title: *Investigation of Surface Textured Cutting Tools for Machining of Medium Carbon Steel*
Submitted: November 2017 | Defended: November 2018 | Degree Awarded
Current Position: Associate Professor and Assistant Director (Corporate), JSPM Narhe Technical Campus, Pune
3. **Umesh Chaturvedi** | *Co-supervisors: Prof. G.S. Dangayach, Dr. Monica Sharma*
Title: *Sustainability in Indian Pharmaceutical Companies*
External Registration Program, MNIT Jaipur
Submitted: 15 July 2019 | Defended: 7 February 2020 | Degree Awarded
Current Position: Assistant Professor, GLA University, Mathura
4. **Bijendra Kumar** | *Supervisor*
Title: *Assessing and Improving Sustainability of Products During Conceptual Design*
Submitted: 26 June 2019 | Defended: 14 May 2020 | Degree Awarded
Current Position: Track Design Engineer, Japan International Consultants for Transportation Co. Ltd. (JIC)
5. **Rachit Kumar Sharma** | *Co-supervisor: Prof. Harpreet Singh*
Title: *Assessing and Improving Sustainability in Supply Networks of Manufacturing Organizations*
Funding: DST (India) – EPSRC (UK) funded project on Engineering Driven Sustainable Supply Network Design
Submitted: 8 December 2020 | Defended: 29 June 2021 | Degree Awarded
Current Position: Employed at a foreign sustainability assessment firm
6. **Prashant Kumar Singh** | *Supervisor*
Title: *Understanding and Developing Eco Design Support for Environmentally Conscious Product*

Development

Defended: 2 August 2022 | Degree Awarded

Current Position: Faculty and Associate Dean, Invertis University, Uttar Pradesh

7. **Jitender** | *Supervisor*

Title: *Understanding and Supporting Designers to Improve the Engineering Aesthetics of a Product*

Defended: 20 December 2023 | Degree Awarded

Current Position: Postdoctoral Researcher, IIT Delhi.

8. **Sunil Sharma** | *Supervisor*

Title: *Developing Bioinspired Design Approaches to Support Packaging*

Defended: 21 December 2023 | Degree Awarded

Current Position: Associate Professor and Head of Department, Department of Evaluation-Regular, Division of Examination, Lovely Professional University

9. **Alok Bihari Singh** | *Co-supervisors: Prof. Govind Sharan Dangayach, Dr. Makkhan Lal Meena*

Title: *Assessment of Sustainability Practices in Hospitality Sector: A Select Study of Indian Hotel Industry*

Defended: 6 September 2024 | Degree Awarded

Current Position: Assistant Professor, GLA University

PhD guidance (pursuing)

1. **Kamalpreet Sindhu** | *Supervisor*

Area: Pedagogy in Product Design (August 2021 – Present)

2. **Subha Nath** | *Co-supervisor: Dr. Samir Chandra Roy*

Area: Additive Manufacturing (January 2022 – Present)

3. **Sandeep Kumar** | *Supervisor*

Area: Supply chain in product design (July 2022- present) **Funding:** AWaDH

4. **Akhil Sharma** | *Supervisor*

Area: understanding and supporting product design for Industry 4.0 and beyond (January 2023 – Present).

Funding: AWaDH

5. **Saikat Biswas** | *Co-supervisor: Dr. Samir Chandra Roy*

Area: Additive Manufacturing (January 2024 – Present)

Post-doctoral researchers (completed)

1. **Dr. Rachit Kumar Sharma** | *Co- supervisor: Prof. Harpreet Singh*

Area: Supply Chain Management. **Funding:** IIT Ropar

Status: Completed

2. **Dr. Hemant Nautiyal** | *Supervisor*

Area: Product Design and Agricultural Automation. **Funding:** AWaDH

Status: Completed, March 2025 – November 2025

Masters' guidance (completed)

1. **Amlos Paul** | *Co-supervisor: Dr. Pal (Director, CoE FDDI, GoI and Scientist-G, DIPAS, DRDO)*

Thesis title: *Development of Vibrating Shoes to Reduce Neuropathic Pain*

Completion: June 2025

2. **Sanket Kumar** | *Supervisor*

Thesis title: *AI Powered Teaching and Learning Recommendation System for Engineers: Empowering Educators with AI-Enhanced Teaching*

Completion: June 2025

3. **Pankaj Saini** | Supervisor
Thesis title: *Development of GUI Based Ideation Tool for Bioinspired Shock Protection Systems*. Currently working for TBRL, DRDO
Completion: May 2025
4. **Parama Chirang** | Co-supervisor: Dr. Samir Chandra Roy, Dr. Prabir Sarkar
Thesis Title: *Topology Optimization of 3D Structures using Solid Isotropic Material with Penalization Method*
Completion: July 2024
5. **Ankit Verma** | Co-supervisor: Dr. Ekta Singla
Thesis Title: *Design and Implementation of an Automated Monitoring System in Vertical Farming*
Completion: July 2024
6. **Yagesh Kumar** | Supervisor
Thesis Title: *Biomimicry: Nature-Inspired Innovations*
Completion: July 2024
7. **Loga Vignesh** | Co-supervisor: Dr. Pal, Director, CoE FDDI, Government of India
Thesis Title: *A Fusion of Machine Learning and IoT for Enhanced Safety and Fall Detection*
Completion: June 2024
8. **Rishav Pachoriya** | Supervisor
Thesis Title: *Development of Support to Capture Design Intent in Each Phase of Product Design*
Completion: June 2023
9. **Suraj Goala** | Supervisor
Thesis Title: *Design-Assist Tool: Deciding the Efficacy of Additive Manufacturing Processes and Assisting Product Designers Using DfAM*
Completion: 2021
10. **Suraj Gururani** | Supervisor
Thesis Title: *Analysis of Design Fixation and Its Mitigation with the Help of Bioinspired Design*
Completion: 2021
11. **Abhishek Chauhan** | Supervisor
Thesis Title: *Design Aesthetic of an Electric Two-Wheeler*
Completion: 2021
12. **Sai Teja Pothuri** | Supervisor
Thesis Title: *Development of an Automation Module for Microgreen Roofing*
Completion: 2019
13. **Sarang E. Tayade** | Supervisor
Thesis Title: *Understanding the Relationship Between Stock and Performance of Companies*
Completion: May 2018
14. **Rohit Bamne** | Supervisor
Thesis Title: *Study of Driving Behaviour on the Basis of Distractions*
Completion: July 2018
15. **Jitender** | Co-supervisor: Prof. Ghulam Ashraf Ul Harmain, NIT Srinagar
Thesis Title: *Development of a Method for Benchmarking Sustainable Products*
Completion: 2016

Masters' guidance (persuing)

1. **Sachin Siyal** | Supervisor
Thesis title: *Understanding and supporting product aesthetics in jewelry design*

Other: Research Fellow-JRF as manpower trained (completed)

- Geo Raju. Funded by DST (India) -EPSRC (UK), (April 2015- January, 2016).
- Rachit Kumar Sharma. Funded by DST (India) -EPSRC (UK), (September 2015-January, 2016).
- Jitender. DST, CSRI funded project, (August 2016-December 2016).
- Yuvraj K. Project, micro green roofing. Funded by DST- IMPRINT 2.
- Rishish Mishra. Project, micro green roofing. Funded by DST- IMPRINT 2.
- Shivam Panday. Project, micro green roofing. Funded by DST- IMPRINT 2.

Undergraduate guidance (B.Tech. project, BTP, completed) –selected only

1. Ayush Singh, Dinesh Kumar Swami, Pratima and Yash Rai, 2025 (guide). Fibre-Boards and Cutlery from Stubble and Rice Husk using natural and synthetic adhesives
2. Pratham Singh, Jay Surya, Thenlay Norboo, 2023 (guide). Development of stubble bricks
3. Tushar Sharma, Atinderpal Singh, Jatin Sharma, 2023 (co-guide: Dr. Neeraj Goel). Design of a fruit sorter
4. Prince Kumar and Sanjay Kumar Meena, 2022(guide). Automation in vertical farming
5. Hritik Chouhan, Aavesh Saini, Anshuman Pandey, Chetan Kumar, 2022 (guide). Website development for agriculture products.
6. Abhishek Ashish and Divyanshu Garg, 2022 (guide). Design for Agriculture 4.0: Paradigm, Analysis and selection of techniques for India
7. Aman Goyal and Aman Saraf, 2022 (guide). Automation in Green Roof
8. Gollapalli Umesh Siddhardha, Hari Alekh Panjwani and Pachipala Hemanth, 2022 (guide). Designing Heat Sink
9. Rohan, Prashik Nitnaware, Rahul Meena, 2022 (co-supervisor: Dr. Samir Chandra Roy). Repair and punch
10. Chetan Kumar, Aavesh Saini, Anshuman Pandey, Hritik Chouhan (guide), 2021. Website Development For Agriculture Products
11. Sanjay Kumar Meena, Prince Kumar, 2021 (guide). Automation in vertical farming
12. Sonu, 2020 (guide). Development of a Multiphonics system.
13. Asish Dhingan, P Mukesh, Ravi Mohan Meena, and Alok Mishra, 2015 (guide). Expert review web site.
14. Navneet Singh, Naveen Kumar, Honey Singla, and Naman Chhabra, 2015 (guide). Real estate website development.
15. Siddharth L., 2015 (guide). Prediction of the effect of design changes on company's performance.
16. Javed Khan and Nishant Kumar, 2014 (co-guide: Prof. Harpreet Singh). Seed oil extractor.
17. Ajay Kumar Verma and Pareep Singhroha, 2013 (co-guide: Prof. Harpreet Singh). Handy machine to extract oil from mustard seeds.
18. Ankush Kumar and Lal Singh, 2013 (co-guide: Prof. Navin Kumar). Development of particle board using Rice/Wheat Straw.
19. Parteek Singla, Prashant Yadav, Praveen Kumar Sah, and Raj Narayan Saha, 2012 (co-guide: Dr. Anshu Dhar Jayal). Development of software tool for sustainability evaluation in product design.
20. Raj Narayan Saha and Prashant Yadav, 2012 (co-guide: Dr. Anshu Dhar Jayal). Regenerative braking system for human-powered vehicles.

Entrepreneur in residence (ER)

1. Mentored Arshdeep Tanghi, through Awadh (supervisor)

Staff

1. Mandeep Singh (funded by AWaDH)
2. Fathe Singh (was funded by AWaDH)

Interns

- Many interns have completed with me including summer interns, one-semester interns, AWaDH funded interns

Research Publications

Product Design and Manufacturing: Sustainable design, Design creativity, Sustainable machining and manufacturing, Bio-mimicry in engineering design, Additive Manufacturing, Aesthetics in engineering.

Google scholar <https://scholar.google.com/citations?user=T4O6rLwAAAAJ&hl=en>
(Citations: >5030, h-index = 30, i10-index = 62)

ORCID <https://orcid.org/0000-0002-1649-7678>

Scopus <https://www.scopus.com/authid/detail.uri?authorId=55755355000>

Web of science <https://www.webofscience.com/wos/author/record/L-6752-2015>

Journal Impact factors: I.F. (0.1-1)>6; I.F. (1-2)>2; I.F. (2-3)>2; I.F. (3-4)>8; I.F. (4-5)>3; I.F.>8=4.

Top downloads and references

Recognized among the top ten most cited articles in AI EDAM in 2012, 2013, and 2014

- **Chakrabarti, A., Sarkar, P., Leelavathamma, B., & Nataraju, B. S. (2005).** A functional representation for aiding biomimetic and artificial inspiration of new ideas. *AI EDAM*, 19(2), 113–132.

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- **Sarkar, P., & Chakrabarti, A. (2011).** Assessing design creativity. *Design Studies*, 32(4), 348–383.

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Intellectual Property Rights (IPRs)

Patents Granted

1. Amaresh Chakrabarti, Prabir Sarkar, 2014. Method for Idea Generation for Creation of Product Designs, Indian patent application no.: 859/CHE/2006, patent grant no.: 258579, date of filing: 16th May 2006.
2. Archana Badodekar, Prabir Sarkar, Amaresh Chakrabarti, Prasad G Kamble, 2005. A manually operated aid for impaired people to ingress and egress train and method thereof, 453/CHE/2005, Indian patent grant no.: 227939, date of filing: 20th April 2005.
3. B.Gurumoorthy, Neeraj Pal, and Prabir Sarkar, 2000. Rupturable disposable syringe, Indian patent grant number: 198228, date of filing: 25th February 2000.
4. Gyanendra Singh Goindi, Dr. Anshu Dhar Jayal, Dr. Prabir Sarkar, 2015. A Flexible Continuous Minimum Quantity Lubrication (FCMQL) system, Indian patent application number: 3971/DEL/2015, filing date: 07-Dec-2015. Patent grant no: 376967, dated 15/09/2021.
5. Dr. Prabir Sarkar, Dinesh Chauhan, Duddela Sai Harish, Gaurav Gupta, Dhruv Kumar Bansal, 2016. Semi-automatic food processing device for preparing sweets and savories, Indian patent application number: 201611000957, filing date: 11-Jan-2016. Patent grant no: 384307, dated 14/12/2022.

6. Amit R Patel, Prabir Sarkar, Himanshu Tyagi, Harpreet Singh, 2018. A Method for Determining a Single Discounting Rate for the Processes Involving Emissions. Application no: 201811044462. Date of filing: 26-Nov-18.
7. **US Patent** Application No. 16/540,736. Inventors: Malkeet SINGH, Harpreet SINGH, Christopher Charles BERNDT, Prabir SARKAR. Date of Filing: 14/08/2019. Title: Technology and process for 3d printing using swarf particles.
8. Dr. Prabir Sarkar, Bishal Ghosh, Mahak Sarin, Alluvala Mamata, Dev Prabhaker Singh Tomar, 2015. Stapler device with multi-tier force multiplication mechanism for binding hard materials, Indian patent application number: 3961/DEL/2015, filing date: 04-Dec- 2015.
9. Dr. Prabir Sarkar (Principal Investigator), Banoth Praveen Kumar, Honey Singla, Imroj Qamar, Jaskaran Singh Viridi, Kumar Harshad, 2013. Weighing system, Indian patent application number: 3354/DEL/2013, filing date: 15-November- 2013.
10. Dr. Prabir Sarkar, 2016. A programmable electro-mechanical combination locking system, Indian patent application number: 201611004726, filing date: 10-Feb-2016.
11. Dr. Prabir Sarkar, Nishant Bagaria, Ekjot Singh, Nabajit Hazowary, Gaurav Kumar, 2016. A rectangular slot-cutting machine for slots of variable sizes, Indian patent application number: 201611015347, filing date: 03-May-2016.
12. Mr. Amit Rajnikant Patel, Dr. Prabir Sarkar, Dr. Himanshu Tyagi and Prof. Harpreet Singh. System and method for tracking details of energy associated with an energy generation process. Application no.: 202011011721 dated 18/03/2020.
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14. Ashish Sahu and Prabir Sarkar. Safety mechanism for a device and a method thereof. 202111041794. Filing date: 15/09/2021.
15. Ashish Sahu and Prabir Sarkar, 2021. A measuring device for measuring the surface contour of an object. Application No:02111051100, Filing Date:08-11-2021. Non-Provisional Application, Delhi.
16. Dr. Prabir Sarkar, 2021. Automatic mold forming device. Application no: 202111027616. Dated 01/08.2022.

Design patent granted (Design registration)

17. Dr. Prabir Sarkar, Dr. Devendra Kumar Chauhan (Department of Orthopedics, Postgraduate Institute of Medical Education and Research (PGIMER, Chandigarh), students: Anshu Kaushal, Jaspal Singh, Kaustav Das, Milind Aggarwal. Bone alignment measuring device for knee surgery. Design Application No. 292918. Design accepted and published, Journal no: 42/2019, dated 18.10.2019.

Design patent (Design registration filed)

18. Loga Vignesh, Madhusudan Pal, Prabir Sarkar, 2024. Development of Footwear for Indoor Fall Detection and activity Monitoring.

Patents Pending (filed, some of them are published) [\[link\]](#)

19. Sandeep Kumar and Prabir Sarkar, 2026. Dual-Layer Biodegradable Grain Packaging Sack with Freshness Indicator and Moisture-Control Insert (Filed). Application No. 202611036494.
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22. Dr. Prabir Sarkar and Mandeep Singh, 2024. A semi-automatic seed sowing apparatus. Application No.202411027955 A. Date of filing of Application :04/04/2024 (43) Publication Date : 31/10/2025
23. Filing of Complete Application (Patent of Addition) in India: (LRN No: P3001-IN). Application No: 201923001267. Date of Filing: 10/01/2019. Title: A technology and process for 3D printing using SWARF particles. Applicants: Indian Institute of Technology Ropar and Swinburne University of Technology. Inventors: Malkeet Singh, Harpreet Singh, Christopher Charles Berndt and Prabir Sarkar.
24. Dr. Prabir Sarkar, Akash Mathwani, Arpit Sharma, Jitendra Kumar, Harshjeet Singh Aulakh, 2017. System and method for controlling electronic locks, Indian patent application number: 201711003769, filing date: February 01, 2017.
25. Dr. Navin Kumar, Dr. Prabir Sarkar, 2016. A method of fabricating particleboard from cellulosic plant material, Indian patent application number: 201611029993, filing date: 01-Sep-2016.

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- Sachin Siyal and Prabir Sarkar, 2026. An intelligent jewellery design, development and decision-making system.
- Sandeep Kumar and Prabir Sarkar, 2026. A Computer-Implemented Decision Support System and Method for Multi-Crop Planning Using Integrated Multi-Label Prediction and Multi-Objective Optimization

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- B1. **Sandhu, K., Subburaj, K., Pal, M., Sarkar, P., & Singh, S. (Eds.).** (2025). *Footwear Innovation: From Conceptual Design through to Advanced Manufacturing Techniques*. Academic Press. Elsevier. (ISBN: 9780443267512).
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- B3. **Chakrabarti, A., Rachuri, S., Sarkar, P., & Kota, S. (Eds.).** (2010). *Designing sustainable products, services and manufacturing systems*. Research Publishing Services, Singapore. ISBN: 978-981-08-5466-9.
- B4. **Rachuri, S., Sarkar, P., Kiritsis, D., & Nakano, M. (Eds.).** (2009). *Developing sustainable products, processes and services* [Special issue book]. *International Journal of Product Lifecycle Management*, 4(1–3). Inderscience. ISSN: 1743-5110.

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- B5. **Sandhu, K., Sarkar, P., & Subburaj, K.** (Expected 2026). *Product design and entrepreneurship thinking*. Taylor & Francis. (Accepted for publication; writing in progress)
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6. **Rachuri, S., Sriram, R. D., Narayanan, A., Sarkar, P., Lee, J. H., Lyons, K. W., & Kemmerer, S. J.** (2011). Sustainable manufacturing: Metrics, standards, and infrastructure—Workshop summary. *International Journal for Sustainable Manufacturing*, 2(2/3). (IF = NA)

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7. **Sarkar, P., & Chakrabarti, A.** (2013). A support for protocol analysis for design research. *Design Issues*, 29(4), 70–81. https://doi.org/10.1162/DESI_a_00231. (I.F. = 0.6, Q3)
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9. **Sarkar, P., Sharma, B., & Malik, U.** (2014). Energy generation from grey water in high raised buildings: The case of India. *Renewable Energy*, 69, 284–289. <https://doi.org/10.1016/j.renene.2014.03.046>. (I.F. = 8.6, Q1)
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24. **Sharma, R. K., Pallakonda, S., Raju, G.*, Sarkar, P., Singla, E., & Singh, H.** (2018). An approach to evaluate sustainability of a production process based on its LCA and environment impact analysis: A case study on a food product. *Materials Today: Proceedings*, 5(5, Part 2), 12467–12473. <https://doi.org/10.1016/j.matpr.2018.02.226>. (IF = 0.9, Q4)
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30. **Singh, P. K.*, Singh, A. K., Siddhartha, & Sarkar, P.** (2020). Optimizing the performance parameters of injection-molded polymer spur gears. *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications*. <https://doi.org/10.1177/1464420720977561>. (I.F. = 0.7, Q4)
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- C58. **Sharma, A., Sarkar, P., Rana, M., & Kumar, S.** (2024). Design and development of an automated desktop herbal garden. *Proceedings of the International Conference on Emerging Trends in Business Analytics and Management Science (BAMS-ORSI 2024)*, December 12–14, IIT Bombay.
- C59. **Kumar, S., Sarkar, P., Sharma, A., & Singh, M.** (2024). Sustainable crop management: A support system tailored to India's climatic challenges. *Proceedings of the Second Shiksha Maha Kumbh International Conference on Indian Education System for Global Development*, December 16–17, Kurukshetra University, Kurukshetra, Haryana. (Second prize in the "Best Paper Presenter" category).
- C60. **Sharma, A., Sarkar, P., Singh, M., Kumar, S., & Jitender.** (2024). Leveraging Industry 4.0 for innovative product design: Challenges and opportunities. *Proceedings of the Second Shiksha Maha Kumbh International Conference on Indian Education System for Global Development*, December 16–17, Kurukshetra University, Kurukshetra, Haryana. (Third prize in the "Best Paper Presenter" category).
- C61. **Kaur, S., Sandhu, K.*, Sarkar, P., & Subburaj, K.** (2024). Understanding user experience: Exploration of various definitions using natural language processing. *Proceedings of the 10th International Conference on Research into Design (ICoRD'25)*, January 8–10, Indian Institute of Technology Hyderabad, Telangana, India.
- C62. **Sandhu, K.*, Sarkar, P., & Subburaj, K.** (2024). Identification of skills for entrepreneurial thinking using natural language processing: An exploration of entrepreneurs, faculty members, and design students. *Proceedings of the 10th International Conference on Research into Design (ICoRD'25)*, January 8–10, Indian Institute of Technology Hyderabad, Telangana, India.
- C63. **Kumar, S., & Sarkar, P.** (2025). Effect of water immersion on the mechanical and solvent compatibility properties of SLA-printed grey resin V5 at varying layer thicknesses: Experimental evaluation and predictive modeling. *Proceedings of the 10th International and 31st All India Manufacturing Technology, Design & Research Conference (AIMTDR 2025)*, IIT Indore, December 2025. (accepted)
- C64. **Sharma, A., & Sarkar, P.** (2025). Advancing biomedical applications through additive manufacturing: A critical review of SLA technology, smart materials, and emerging trends. *Proceedings of the International Conference on Current and Futuristic Research Trends in Manufacturing (CFRTM-2025)*, IIT Bhubaneswar, December 19–21, 2025. (accepted)
- C65. **Sharma, A., & Sarkar, P.** (2025). Understanding the need for Industry 5.0 in product design: Enablers and benefits. *Proceedings of the 7th International Conference on Innovative Product Design and Intelligent Manufacturing Systems (ICIPDIMS 2025)*, NIT Rourkela, December 2025. (accepted)

National Conferences and Symposiums [* Students: PhD, M. Tech., JRF, and B.Tech.]

- NC1. **Sarkar, P., & Vijay, K.** (1997). Implementation of expert system on wire-cutting EDM. *Proceedings of the National Level Technical Symposium*, Literati, R.E.C, Kurukshetra, India.
- NC2. **Chakrabarti, A., Sarkar, P., Phaneendra, S., & Nataraju, B. S.** (2005, November 18-19). A behavioural model for representing natural and artificial systems for inspiring novel designs. *Proceedings of the 5th National Seminar on Aerospace and Related Mechanisms (ARMS)*, ISRO, Bangalore, India.

- NC3. **Sarkar, P., & Chakrabarti, A.** (2006, February 17-18). Determining and measuring product novelty to ascertain innovation in product development cycle. Proceedings of the National Conference on Design for Product Life Cycle (DPLC), BITS, Pilani, India.
- NC4. **Sarkar, P.** (2007). Exploring creativity. Proceedings of the Symposium on Research in Product Design, Indian Institute of Science, Bangalore, India.
- NC5. **Sarkar, P.** (2008). Supporting search of design spaces during design. Proceedings of the Symposium on Research in Product Design, Indian Institute of Science, Bangalore, India.
- NC6. **Dhage, S. B.*, Goindi, G. S.*, Jayal, A. D., & Sarkar, P.** (2013, October 12-13). Influence of cutting tool flank surface texture in mechanical micro-manufacturing of AISI 1045 steel. Proceedings of the National Conference on Manufacturing, Vision for Future, IIT Guwahati, India.

International Workshops

- IW1. Sarkar, P., & Chakrabarti, A. (2008, March). Studying engineering design creativity. In J. Gero (Ed.), Proceedings of the NSF Workshop on Studying Design Creativity. Aix-en-Provence, France.
- IW2. Sarkar, P., Rachuri, S., & Sriram, R. D. (2009, August 18–20). Understanding sustainability of products. Indo-US Workshop on Designing Sustainable Products, Services and Manufacturing Systems, Bangalore, India.

Datasets

- D1. Kumar, Bijendra*; Sarkar, Prabir (2017). *Car Advertisement (Study Materials)*, Mendeley Data, v8 <http://dx.doi.org/10.17632/5snrynxwn4.8> (Views: 222550, Downloads: 5704)
- D2. Singh, Jitender*; Sarkar, Prabir (2019), *Dataset on non-visual factors along with sub factors that affects the aesthetics appeal of cars in the mind of potential buyers*, Mendeley Data, v1 <http://dx.doi.org/10.17632/m3jb5nt2tf.1>. (Views:101, Downloads:18)

Technical Reports

- TR1. Dozer group, BEML, 2002. DSIR (Govt. of India's Department for Scientific and Industrial Research) report on directional boring system.
- TR2. Dozer group, BEML, 2002. TIFAC (Technology Information Forecasting & Assessment Council) report on Radio Controlled Dozer (Disaster management equipment).
- TR3. Sudarsan Rachuri, Ram D. Sriram, Anantha Narayanan, Prabir Sarkar, Jae-Hyun Lee, Kevin W. Lyons, Sharon J. Kemmerer (Eds.), 2010. Sustainable Manufacturing: Metrics, Standards, and Infrastructure Workshop report, NISTIR.
- TR4. Koustuv Dalal, Samaresh Bardhan, Parwinder Singh, Prabir Sarkar, Heidi Carlerby, Eija Viitasara, Katja Gillander Gådin, 2024. Insights and Realism of Stubble Burning in India: Health Economics Analyses. Collaborative research project: Mid Sweden University, Sundsvall and Indian Institute of Technology, Ropar. Funded by: Swedish Research Council. Printed by Mid Sweden University, Sundsvall. ISBN:978-91-89786-94-3.

Teaching

- 2026 Taught along with other faculty members, "Industrial Management and Entrepreneurship" course for Army personnel (Officers, JCOS and NCOS director general of resettlement, new Delhi & army training command, Shimla) (4, 11 May 2026)

NPTEL/SWAYAM course

- 2026 Offering NPTEL/SWAYAM course on “**Product Engineering and Design Thinking**” along with Dr. Dan of IIT Kharagpur. Session: Feb- April 2026. Core, eight weeks, Mechanical Engineering, Credit Points: 2, Level: Undergraduate/Postgraduate, Enrolled: 1978. Link: <https://nptel.ac.in/courses/112105316> and https://onlinecourses.nptel.ac.in/noc23_me52/preview
- 2025 Offering NPTEL/SWAYAM course on “**Product Engineering and Design Thinking**” along with Dr. Dan of IIT Kharagpur. Session: Feb- April 2025. Core, eight weeks, Mechanical Engineering, Credit Points: 2, Level: Undergraduate/Postgraduate, Enrolled: 2161. Link: <https://nptel.ac.in/courses/112105316> and https://onlinecourses.nptel.ac.in/noc23_me52/preview
- 2024 Offering NPTEL/SWAYAM course on “**Product Engineering and Design Thinking**” along with Dr. Dan of IIT Kharagpur. Session: Feb- April 2024. Core, eight weeks, Mechanical Engineering, Credit Points: 2, Level: Undergraduate/Postgraduate, Enrolled: >1000 Link: <https://archive.nptel.ac.in/courses/112/105/112105316/> https://onlinecourses.nptel.ac.in/noc23_me52/preview.
- 2023 Offering NPTEL/SWAYAM course on “**Product Engineering and Design Thinking**” along with Dr. Dan of IIT Kharagpur. Session: Feb- April 2023. Core, eight weeks, Mechanical Engineering, Credit Points: 2, Level: Undergraduate/Postgraduate, Enrolled: 2161 Link: <https://archive.nptel.ac.in/courses/112/105/112105316/> https://onlinecourses.nptel.ac.in/noc23_me52/preview.

Undergraduate courses (a few graduate and PhD students also enrolled these courses)

2026

Currently teaching

- **Honors Project II** (CP305, 0-0-10-5-5). Coordinated as a batch advisor for undergraduate students of Mechanical Engineering. January–May, 2026. Enrolment: 2.
- **Capstone Project II** (CP303, 0-0-6-3-3). Coordinated/ taught to undergraduate students of Mechanical Engineering. January–May, 2026. Enrolment: 71.
- **Manufacturing Laboratory-II** (ME 308, 0-0-4-2-2). Core lab, co-taught to Mechanical Engineering undergraduate students, January-May, 2026. Enrolment: 72.

2025

- **Additive Manufacturing** (ME549, 3-0-0-6-3). Taught to undergraduate, graduate and PhD students of Mechanical Engineering. August-December, 2025. Enrolment: 28, Feedback: 4.79/5.0.
- **Honors Project** (CP304, 0-0-10-5-5). Coordinated as a batch advisor for undergraduate students of Mechanical Engineering. August-December, 2025. Enrolment: 2, Feedback: NA
- **Additional internship** (II302, 0-0-30-0-15). Coordinated as a batch advisor for undergraduate students of Mechanical Engineering. August-December, 2025. Enrolment: 19, Feedback: NA

- **Industrial Internship and Comprehensive Viva** (II301, 0-0-7-3.5-3.5). Coordinated as a batch advisor for undergraduate students of Mechanical Engineering. August-December, 2025. Enrolment: 73, Feedback: 4.13/5.0.
- **Capstone Project I** (CP302, 0-0-6-3-3). Coordinated/ taught to undergraduate students of Mechanical Engineering. August-December, 2025. Enrolment: 39, Feedback: 4.49/5.0.
- **Manufacturing Laboratory-I** (ME 208, 0-0-4-2-2). Core lab, co-taught to Mechanical Engineering undergraduate students, August-December, 2025. Enrolment: 72, Feedback: 4.7/5.0.

- **Capstone Project I** (CP302, 0-0-6-3-3). Coordinated/ taught to undergraduate students of Mechanical Engineering. January–May, 2025. Enrolment: 32, Feedback: 5.0/5.0.
- **Development Engineering Project** (CP301, 0-0-6-3-3). Coordinated/ taught to undergraduate students of Mechanical Engineering. January–May, 2025. Enrolment: 71, Feedback: 4.7/5.0.
- **Manufacturing Laboratory-II** (ME 308, 0-0-4-2-2). Core lab, co-taught to Mechanical Engineering undergraduate students, January-May, 2025. Enrolment: 72, Feedback: 4.33/5.0.

2024

- **Additive Manufacturing** (ME549, 3-0-0-6-3). Taught to undergraduate, graduate and PhD students of Mechanical Engineering. August-December, 2024. Enrolment: 41, Feedback: 4.09/5.0.
- **Manufacturing Laboratory-I** (ME 208, 0-0-4-2-2). Core lab, co-taught to Mechanical Engineering undergraduate students, August-December, 2024. Enrolment: 71, Feedback: 4.34/5.0.
- **Manufacturing Laboratory-II** (ME 308, 0-0-4-2-2). Core lab, co-taught to Mechanical Engineering undergraduate students, January-May, 2024. Enrolment: 72, Feedback: 4.34/5.0.

2023

- **Additive Manufacturing** (ME549, 3-0-0-6-3). Taught to undergraduate, graduate and PhD students of Mechanical Engineering. August-December, 2023. Enrolment: 54, Feedback: 4.63/5.0.
- **Manufacturing Laboratory-I** (ME 208, 0-0-4-2-2). Core lab, co-taught to Mechanical Engineering undergraduate students, August-December, 2023. Enrolment: 73, Feedback: 4.34/5.0.
- **Manufacturing Laboratory-II** (ME 308, 0-0-4-2-2). Core lab, co-taught to Mechanical Engineering undergraduate students, January-May, 2023. Enrolment: 70, Feedback: 4.34/5.0.

2022

- **Additive Manufacturing** (ME549, 3-0-0-6-3). Taught to undergraduate, graduate and PhD students of Mechanical Engineering. August-December, 2022. Enrolment: 47, Feedback: 4.12/5.0.
- **Manufacturing Laboratory-I** (ME 208, 0-0-4-2-2). Core lab, co-taught to Mechanical Engineering undergraduate students, August-December, 2022. Enrolment: 70, Feedback: 4.54/5.0.
- **Manufacturing Laboratory-II** (ME 308, 0-0-4-2-2). Core lab, co-taught to Mechanical Engineering undergraduate students, January-May, 2022. Enrolment: 80. Feedback: 3.94/5.0.

2021

- **Additive Manufacturing** (ME549, 3-0-0-6-3). Taught to undergraduate, graduate and PhD students of Mechanical Engineering. August-December, 2021. Enrolment: 23, Feedback: 4.32/5.0.
- **Manufacturing Laboratory-I** (ME 208, 0-0-4-2-2). Core lab, co-taught to Mechanical Engineering undergraduate students, August-December, 2021. Enrolment: 78, Feedback: 4.26/5.0.
- **Manufacturing Laboratory-II** (ME 308, 0-0-4-2-2). Core lab, co-taught to Mechanical Engineering undergraduate students, January-May, 2021. Enrolment: 85. Feedback: 3.95/5.0.

2020

- **Additive Manufacturing** (ME549, 3-0-0-6-3). Taught to undergraduate, graduate and PhD students of Mechanical Engineering. August-December, 2020. Enrolment: 37.

- **Manufacturing Laboratory-I (ME 208, 0-0-4-2-2).** Core lab, co-taught to Mechanical Engineering undergraduate students, August-December, 2020. Enrolment: 62, Feedback: 4/5.0.
- **Manufacturing Laboratory-II (ME 308, 0-0-4-2-2).** Core lab, co-taught to Mechanical Engineering undergraduate students, January-May, 2020.

2019

- **Manufacturing Systems (MEL 402).** Taught to undergraduate students of Mechanical Engineering. August-December, 2019.
- **Manufacturing Laboratory (MEP 302).** Co-taught to undergraduate students of Mechanical Engineering. August-December, 2019.
- **Tinkering Lab (GE 107).** Co-taught to undergraduate students. January-May, 2019.

2018

- **Manufacturing Laboratory (MEP 302).** Co-taught to undergraduate students of Mechanical Engineering. August-December, 2018. Feedback: 3.5/5.0.
- **Manufacturing Systems (MEL 402).** Taught to **undergraduate** students of Mechanical Engineering. July–December, 2018. Feedback: 3.3/5.0.
- **Product Design and Realization Intermediate II (MEP 205).** Taught to undergraduate students of Mechanical Engineering. January–May, 2018. Feedback: 3.71/5.0.

2017

- **Manufacturing Laboratory (MEP 302).** Co-taught to undergraduate students of Mechanical Engineering. August-December, 2017.
- **Manufacturing Systems (MEL 402).** Taught to undergraduate students of Mechanical Engineering. August-December, 2017.
- **Product Design and Realization Intermediate II (MEP 205).** Co-taught to undergraduate students of Mechanical Engineering. January–May, 2017.

2016

- **Product Design and Realization I (GEL 101).** Co-taught to undergraduate students of Mechanical, Computer Science, and Electrical Engineering. August–December, 2016.
- **Manufacturing Laboratory (MEP 302).** Co-taught to undergraduate students of Mechanical Engineering. August–December, 2016.
- **Product Design and Realization Intermediate II (MEP 205).** Taught to undergraduate students of Mechanical Engineering. January–May, 2016.

2015

- **Product Design and Realization I (GEL 101).** Taught to undergraduate students of Mechanical, Computer Science, and Electrical Engineering. August–December, 2015.
- **Computer Aided Design and Manufacturing (MEL 474).** Co-taught to undergraduate students of Mechanical Engineering. Summer, 2015.
- **Product Design and Realization I (GEL 101).** Taught to undergraduate students of Mechanical, Computer Science, and Electrical Engineering. January–May, 2015.

2014

- **Product Design and Realization I (GEL 101).** Taught to undergraduate students of Mechanical, Computer Science, and Electrical Engineering. August–December, 2014.
- **Computer Aided Design and Manufacturing (MEL 474).** Co-taught to undergraduate students of Mechanical Engineering. August–December, 2014.
- **Product Design and Realization I (GEL 101).** Taught to undergraduate students of Mechanical, Computer Science, and Electrical Engineering. January–May, 2014.

2013

- **Product Design and Realization Intermediate II (MEP 205).** Co-taught to undergraduate students of Mechanical Engineering. August–December, 2013.
- **Mechanical Engineering (MEN 100).** Co-taught to undergraduate students of Mechanical Engineering. August–December, 2013.
- **Product Design and Realization I (GEL 101).** Taught to undergraduate students of Mechanical, Computer Science, and Electrical Engineering. January–May, 2013.

2012

- **Mechanical Engineering (MEN 100).** Co-taught to undergraduate students of Mechanical Engineering. August–December, 2012.
- **Product Design and Realization I (GEL 101).** Taught to undergraduate students of Mechanical, Computer Science, and Electrical Engineering. August–December, 2012.
- **Product Design and Realization I (GEL 101).** Taught to undergraduate students of Mechanical, Computer Science, and Electrical Engineering. January–May, 2012.

2011

- **Product Design and Realization I (GEL 101).** Taught to undergraduate students of Mechanical, Computer Science, and Electrical Engineering. August–December, 2011.

Post graduate (a few senior undergraduate and PhD students also enrolled these courses)

Completed

- **Scientific writing and Technical communication course (ME 700)** Cotaught along with other faculty members (26 March and 27March). Enrolment: 16.

Currently teaching

2026 Sustainable Design and Manufacturing (ME545, 2-0-4-6-4). Taught as program core/elective to Mechanical Engineering graduate and undergraduate students. January–May, 2025. Enrolment: 28.

Completed

- 2025 Sustainable Design and Manufacturing (ME545, 2-0-4-6-4).** Taught as program core/elective to Mechanical Engineering graduate and undergraduate students. January–May, 2025. Enrolment: 8. Feedback: 4.58/5.0.
- 2024 Computer Integrated Design and Manufacturing Systems (ME 559, 2-0-2-5-3).** Taught as program core/elective to Mechanical Engineering M.Tech. students. January–May, 2024. Enrolment: 20. Feedback: 4.46/5.0.
- 2023 Computer Integrated Design and Manufacturing Systems (ME 559, 2-0-2-5-3).** Taught as program core/elective to Mechanical Engineering graduate and undergraduate students. January–May, 2023. Enrolment: 28. Feedback: 3.85/5.0.
- 2022 Computer Integrated Design and Manufacturing Systems (ME 559, 2-0-2-5-3).** Taught as program core/elective to Mechanical Engineering graduate and undergraduate students. January–May, 2022. Enrolment: 11. Feedback: 4.56/5.0.
- 2021 Computer Integrated Design and Manufacturing Systems (ME 559).** Taught to Mechanical Engineering graduate students. January–May, 2021. Enrolment: 26. Feedback: 4.16/5.0.
- 2020 Computer Integrated Design and Manufacturing Systems (ME 559).** Taught to Mechanical Engineering graduate students. January–May, 2020.
- 2019 Sustainable Design and Manufacturing (MEL 517).** Taught to PhD and Masters' students. January–May, 2019.
- 2018 Sustainable Design and Manufacturing (MEL 517).** Taught to PhD and Masters' students. January–May, 2018. Feedback: 3.6/5.0.

- 2017 Sustainable Design and Manufacturing (MEL 517).** Taught to PhD and Masters' students. January–May, 2017.
- 2014 Design Research (MEL 467).** Co-taught to Mechanical Engineering graduate and undergraduate students. Summer, 2014.
- 2013 Sustainable Design and Manufacturing (MEL 517).** Co-instructed course for graduate students. August–December, 2013.
- 2013 Design Research (MEL 467).** Co-taught to Mechanical Engineering graduate and undergraduate students. January–May, 2013.
- 2012 Sustainable Design and Manufacturing (MEL 517).** Co-instructed course for graduate students. January–May, 2012.

Short-term courses other than IIT Ropar

- 2010 Design of cars,** a short course for senior students, Frederick school, Maryland, USA.
- 2014 Advanced Aesthetics,** a short course for Master of Design students at the Indian Institute of Science Bangalore.
- 2003 Computer-Aided Design,** a short course taught at Kolar Gold Fields.
- 1998 Computer-Aided Design,** a short course taught at Trichy.

Professional Services

Editorial Roles

- **Associate Editor**, *Smart and Sustainable Manufacturing Systems*, ASTM (SCI listed)
- **Associate Editor**, *Frontiers in Manufacturing Technology*, Frontiers (New journal)
- **Editorial Board Member**, *Journal of Engineering, Design, and Technology*, Emerald (SCI listed, Q1)
- **Editorial Board Member**, *International Association of Scientific Innovation and Research (IASIR) Journals*
- **Founder Editor-in-Chief**, *International Journal of Product Design*, Serials Publications (<http://www.serialspublications.com/journals1.asp?jid=477&jtype=1>) (2008–2011)
- **Special Issue Editor**, *International Journal of Product Lifecycle Management (IJPLM)* – Special Issue: *Developing Sustainable Products, Processes, and Services* (<http://www.inderscience.com/browse/index.php?journalCODE=ijplm>).
- **Special Issue Editor**, *Frontiers in Manufacturing Technology* – “Role of Life Cycle Engineering in Sustainable Development of Plastic Circular Economy”
- **Co-Editor**, New article collection on *Industry 4.0 and its Applications to Develop Smart Manufacturing Environments*
- **Special Issue Editor**, Prabir Sarkar, Sunil Sharma, and Basab Chakraborty, (Expected 2025). Special Issue on Sustainable Bioinspired Design and Manufacturing for ASTM International Journal Smart and Sustainable Manufacturing Systems (SSMS), ASTM

Journal reviewer

- **Springer nature:** *Scientific reports*
- **Springer Publisher:** *Research in Engineering Design*, (many papers), *Sadhana*, *Environmental Science and Pollution Research*, *Journal of The Institution of Engineers (India): Series C, Environment, Systems and Decisions*, *Journal of Supercomputing*,
- **Taylor and Francis:** *Journal of Engineering Design* (many papers), *Co-Design*, *Production Planning and Control*, *International Journal of Design Creativity and Innovation*, *Applied Economics*.

- **Inderscience:** *International Journal of Design Engineering, International Journal of Intelligent Enterprise (IJIE), International Journal of Precision Technology*
- **Elsevier:** *Design studies, Journal of Manufacturing Processes, SME, Materials Today Proceedings, Technology Forecasting and Social Change (IF=8), Environment Development and Sustainability*
- **ASME:** *Journal of Mechanical Design*
- **IEEE:** *Transactions on Automation Science and Engineering (T-ASE)*
- **Cambridge University Press:** *Design science*

Conference reviewer

- ICED25 - 25th International Conference on Engineering Design, Dallas, Texas, USA, 11 - 14 August 2025
- International Conference on Research into Design- ICoRD'25. Indian Institute of Technology Hyderabad
- I4-AM. 3rd International Conference on Industry 4.0 and Advanced Manufacturing, 11 - 12 Jan 2024 | Indian Institute of Science, Bangalore, India
- 5th International Conference on PLMSS 2015.
- International Conference on Research into Design (ICoRD'15), Bangalore, India
- International Design Engineering Technical Conferences (IDETC) & Computers and Information in Engineering Conference (CIE), ASME 2014, 2011 and 2009
- AIMTDR 2014 conference
- IEEE-TASE, 2013, Aston University
- iNaCoMM, 2013. 1st International and 16th National Conference on Machines and Mechanisms, IIT Roorkee.
- ACM SIGCHI Creativity & Cognition 2009 conference, October 27-30, 2009. Berkeley Art Museum & UC Berkeley, USA
- Third International Conference on Design Computing and Cognition, 2008 (DCC, 2008), 23-25 June, Georgia Institute of Technology, Atlanta, USA
- Seventh International Symposium on Tools and Methods of Competitive Engineering (TMCE 2008), April 21-25, 2008, Izmir, Turkey

International program committee member

- International Programme Committee of the ICORD, 2027, IISc, Bangalore.
- Member program committee Fourth International Conference on Industry 4.0 and Advanced Manufacturing (I4AM), Indian Institute of Science, Bengaluru, India, January 8-9, 2026.
- Member of the scientific committee for ICED25, the 25th International Conference on Engineering Design in Dallas, Texas
- International Conference on Research into Design- ICoRD'25. Indian Institute of Technology Hyderabad
- I4-AM. 3rd International Conference on Industry 4.0 and Advanced Manufacturing, 11 - 12 Jan 2024 | Indian Institute of Science, Bangalore, India
- 28th CIRP Conference on Life Cycle Engineering, March 10th – 12th 2021, Jaipur, India
- International Programme Committee of the ICORD, 2021
- International Programme Committee of the ICORD, 2017. 5th International Conference on Research into Design (ICoRD'17), IIT Guwahati, India
- International Programme Committee of the 3rd International Conference on Design Creativity (3rd ICDC), 2014
- International Programme Committee of the ICORD, 2015. 5th International Conference on Research into Design (ICoRD'13), Bangalore, India
- International Programme Committee of the ICORD, 2013. 4th International Conference on Research into Design (ICoRD'13), Bangalore, India

Academic and administrative services in the Department of Mechanical Engineering at IIT Ropar

- **Member**, DUGC members (2023-present)
- **Member**, ME faculty shortlisting committee (2017-present)
- **Member**, Departmental purchase recommendation committee (DPRC, 2016-present)
- **Member**, Departmental financial planning and resource allocation committee (2017-present)
- **Member**, web development committee (2012-present)
- **Member**, manufacturing machines, tools, and equipment committee (2013- present)
- **Member**, standing purchase committee for manufacturing group (13.9.2011-present)
- **Member**, short listing committee member for SMEE faculty recruitment (2011, 2012)
- **Member**, purchase committee of Product design and realization computer laboratory (2013)
- **Member**, expert talk organization committee (2016-present)
- **Member**, Departmental Junior Lab Assistant recruitment committee (2016-present)
- **Member**, Departmental Staff Recruitment Committee (2016-2018)
- **Founder faculty**, Design research laboratory (2012-present)
- **Co-founder faculty**, Sustainable design and manufacturing laboratory (2012- present)
- **Co-founder faculty**, Design studio laboratory (2013-current)
- **ME Masters students' batch advisor**, 2017 Batch
- **Member**, Departmental research committee- DPGC (2017-present)
- **Faculty advisor** (2022 B.Tech, ME, batch advisor)
- **Member**, UG curriculum revision committee, Mechanical Engineering (2026- present).
- **ACPGRS** (2026- present)

Academic and administrative services at IIT Ropar

- **Chairman IPR cell (2015-2021)**. initiated the cell and supported IPR for the last few years. The number of IPRs applications have increased from 0 to 72. Started Intellectual Property Cell (IPR cell) at IIT Ropar and received an initial grant from PSCST (July 2014- present) and coordinating with Patent Information Centre (PSC), Punjab State Council for Science and Technology (PSCST) and Technology Information, Forecasting and Assessment Council (TIFAC), Government of India for patent filing (2013-present)
- **Nodal officer IPR of IIT Ropar (2015- present)**. Able to attract funding from PSCST of gov. of Punjab.
- **HOD (formerly coordinator/chairman) of the central workshop (2012-2018)**. Initiated and purchased various machines, recruited new staff and designed the new workshop in the main campus.
- **Member**, Doctoral Committee (DC) for many students of the ME department and the Institute: 1. Ashpreet Singh 2. Jaspreet Singh Chahal 3. Ashis Gupta 4. Sameer Gupta 5. Neha Singh Bhakal 6. Saikha Bhatta 7. Harish Kumar Nirala 8. Devi Prasad Dash 9. Mahima Gulati 10. Rajesh Sharma 11. Kirandeep Kaur 12. Sandeep Kumar 13. Vishal Agarawal 14. Amit Patel 15. Mohit Raj Saxena 16. Lakhani Piyush 17. Abhishek Kumar 18. Devi Prasad Dash 19. Siddharth Chauhan 20. Sanjeev Singh Yadav 21. Disha Sharma 22. Nagandra SM 23. Pompi Chetia 24. Parminder Singh
- **Member**, Web development committee of the institute (2012-present)
- **Member**, Institute Ranking Committee (2016-present)
- **Member**, banner and hoarding committee (2012-2015)
- **Member**, guest house facility committee (2012-2013)
- **Member** of the selection committee of Junior Attendant (Semi-skilled) (ME) (09.05.2013)
- **Member**, new campus development committee (2013-2015)
- **Member**, Institute car purchase and renting committee (2013-present)
- **Coordinator** of Product design and realization manufacturing laboratory (workshop) (2013-present)
- Developed four products for Rural Technology Action Group (RuTAG) group (2013, 2014)

- **Member** of Unnat Bharat Abhiyan, IIT Ropar (2015-present)
- **Member of the board of directors**, IIT Ropar Technology Business Incubator Foundation (TBIF)- 2019- 2022
- **Member of Senete, IIT Ropar**, 2025-present
- **Member**, Central committee for framing guidelines on implementation of Start-up/ Product Ph.D. (2026-present)
- Took initiative and played major role in getting MOU signed with IIT Ropar with multiple organizations (DIPAS, IIT Ropar, IIT Kharagpur, FDDI, India, ELT India)
- **ACRPGS** faculty representative from the Mechanical Engineering Department. (2026-present)
- **Faculty Mentor** for TBIF Startup "OMAP Management Services pvt. ltd. (2026-present)

International conferences/workshops/design exhibitions co-organized

- Workshop conducted, 'AI-Powered Creativity: Revolutionizing Design Processes and Outcomes.' Sunil Sharma and Prabir Sarkar, 2025. 10th International Conference on Research into Design - ICoRD' 25, IIT Hyderabad.
- Session chair, Enabling Technologies & Tools (Computer-Aided Conceptual Design, Augmented/Virtual Reality, MEMS, Haptics, Smart Technologies, IoT, Cobotics, etc.). 10th International Conference on Research into Design - ICoRD' 25, 09 January 2025 at IIT Hyderabad.
- Workshop conducted, 'Generating Bioinspired design (Biomimicry) for solving problems.' Sunil Sharma and Prabir Sarkar, 2021. 8th International Conference on Research into Design (ICORD 2021). 7-10 January, 2021. IDC School of Design, IIT Bombay.
- Session Chair, 'Design Ideation, Creativity and Synthesis.' 8th International Conference on Research into Design (ICORD 2021). 7-10 January 2021. IDC School of Design, IIT Bombay. India.
- Workshop conducted, 'Bio mimicry in design of packaging systems' and 'Redesign of a car to improve aesthetics of cars and evaluation of a new method to improve aesthetic appeal of cars' in Chandigarh university for B.Des. students on 19.7.19.
- Conducted 4th Intellectual Property Rights workshop on 17th September, 2018
- Conducted a one-day workshop on IPR at IIT Ropar, 24th Jan 2018.
- Session moderator of Industrial academia conclave (IAC), 2016, IIT Ropar.
- Conducted a one-day workshop on IPR at IIT Ropar, 3 March 2015.
- Session moderator of Industrial academia conclave (IAC), 2015, IIT Ropar.
- Session chair and conducted a workshop on sustainability at the International Conference on Research in Design, ICORD 2015, Bangalore, India, 7-9th January 2015.
- Co-chair of 29th Computers and Information in Engineering Conference (CIE), Product Lifecycle Management for Sustainable Manufacturing (CIE-9-1 PLM-1), ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, August 28 –September 2, 2009, San Diego.
- Indo-US Workshop on Designing Sustainable Products, Services and Manufacturing Systems, Bangalore, India, Aug 18-20, 2009.
- NIST Workshop on Sustainable Manufacturing: Metrics, Standards, and Infrastructure, October 13-15 2009, NIST.
- Research in Product Design, 2007 and 2008, Indian Institute of Science, Bangalore.
- Indo –US Workshop, Engineering design, 2007, Bangalore.
- Green Design Workshop, 2007, Bangalore.
- Ripples 2000, 2005, Indian Institute of Science, Bangalore.
- Technical Program committee member of Prodigy, 1997- a technical symposium, National Institute Technology, Trichy.

External expert (Academic)

- **Faculty Recruitment External Expert**, Jain University (2023), MIT-WPI (2023)
- **PhD Thesis Examiner**, IISc Bangalore (4 students), MNIT Jaipur (3 students), BITS Pilani (1 student).
- **M.Tech. thesis examiner**, various colleges.
- **External Expert**, Research Degree Committee (RDC), Chandigarh University (2019–present)
- **Academic Expert**, Board of Studies, Industrial Design, Chandigarh University (2019–present)
- **Board of Studies Member**, Mechanical Engineering, Chandigarh University (2020–present)
- **Faculty Mentor** for OMAP Management Services Pvt. Ltd (TBIF Incubated Startup)

National level responsibilities

- **Member**, Project Assessment Committee Member, MSME Design Scheme (2023–present)
- **Panel Member**, Technical Proposal Evaluations for Army Design Bureau (2023, 2024)
- **Member**, selection committee, Global Initiative of Academic Networks (GIAN), MHRD
- **Technical Program Committee (TPC)** member for Mechanical, Manufacturing, Aerospace Engineering and Robotics under the Advanced Research Grant (ARG) program of the Anusandhan National Research Foundation (ANRF), Gov. of India (2025-present)
- **Co-chair of "Extreme Environment Physiology and Soldier Support System (EEP&SP, formerly Extreme Environment and Behavioral Sciences (PEEE&BS) specialist panel of Life Science Research Board (LSRB), DRDO under Director General (Technology Management), Defense Institute of Physiology and Allied Science (DIPAS), Defense Research and Development Organization (DRDO), Gov. of India, Delhi.**

Design activities

New product development

- Designed as a lead engineer, the first radio-controlled dozer of India while working for BEML (2000-2002).
- Invented an auto-disposable syringe and patented the design (MAS/2000).
- Designed and developed various industrial projects such as load indicator deck lamps for a dumper (BH85), joysticks for dumpers for hoist control, and new dashboards for dumpers (BH85) for the universal electronic controller.
- Co-developed stubble removing agricultural machine for stopping stubble burning and received patent.
- Various consultancy projects were carried out both as a consultant and as a volunteer.
- Developed various products with students and patented them.
- For portfolio, please visit my website at www.prabirsarkar.com

Website developments

- Indo-US workshop website
- CPDM Department website (CPDM), IISc, 2005
- Ideas Lab website, (CPDM), IISc, 2005
- Sustainability standards portal, NIST

Software developments

- Intelligent Designer - Design of Jigs and Press Working Tools using AI (C++, AutoCAD) (BE Project)
- Idea-Transcribe – An aid for design researchers for transcribing protocols (VB, Media player, Spreadsheet)
- Idea-Inspire (in a team) - An aid to help designers generate solutions (VC++, OpenGL)
- Idea-Trigger – An aid to trigger ideas (VB, VC++, OpenGL) (Ph.D. work)
- Planner – Planning software for researchers (VB)

- Software developed as a supervisor: Idea generation software using biomimicry, sustainability assessment tool during initial idea generating phase of design.
- Multiple software tools are developed by students guided by me related to sustainability assessment and product design using AI/ML.

Medical equipment design

- 2015 Developed 'Bone alignment measuring system' along with four students of IIT Ropar and with Dr. Chawan of PGI Hospital, Chandigarh, 2015
- 2015 Developed "improved surgical cutter for plastic surgery" for Dr. Sunil Gaba of Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh, along with Dr. S. S. Padhee and Mr. Sameer Mishra, a summer internship student, 2015

Technologies developed

- 2023 TRL9 Design improvement of vegetable seed sowing machine
- 2022 TRL5 Development of Ebb and Flow Hydroponic System
- 2022 TRL9 Modification of Stubble removing machine
- 2022 TRL6 Development of a Multiponics System
- 2022 TRL6 Brick development using stubble and other agricultural waste
- 2022 TRL 7 Semi-Automatic Multi Seeder Machine
- 2022 TRL 6 Peas Peeling Machine
- 2022 TRL9 Manual Operated Seeder Machine
- 2022 TRL2 Design of potato digger machine
- 2021 TRL 8 Develop Hand Made Stubble Product
- 2021 TRL 3 Reverse engineering of a straw removal round baler

Design exhibitions conducted

- 2017 Design exhibition at Indian Institute of Technology Ropar in November 2017
- 2017 Design exhibition at Indian Institute of Technology Ropar in April 2017
- 2016 Design exhibition at Indian Institute of Technology Ropar in November 2016 (guided products displayed= 16).
- 2016 Design exhibition at Indian Institute of Technology Ropar in April 2016 (guided products displayed= 8).
- 2015 Design exhibition conducted for undergraduate students in November 2015 (guided products = 18 approx.).
- 2015 Design exhibition at Indian Institute of Technology Ropar in April 2015 (guided products displayed= 14).
- 2014 Design exhibition conducted for undergraduate students in November 2014 (guided products displayed= 18).
- 2014 Design exhibition conducted for undergraduate students in April 2014 (guided products displayed= 24).
- 2013 Design exhibition conducted for undergraduate students in November 2013 (guided products displayed= 28).
- 2013 Design exhibition conducted for undergraduate students in April 2013 (guided products displayed= 28).
- 2012 Design exhibition conducted for undergraduate students in November 2012 (guided products displayed= 24).
- 2012 Design exhibition conducted for undergraduate students in April 2012 (guided products displayed= 14).
- 2011 Design exhibition conducted for undergraduate students in November 2011 (guided products displayed= 28).

Other information

Certificates and internship training

- 2001 FESTO, Bangalore. Electro-Pneumatics certified course, one week, 2001.
- 2001 Bharat Earth Movers Limited, Kolar Gold Fields. Management Training, one week, 2001
- 1997 Hindustan Motor, Kolkata. Project: Material Handling in Camshaft section, 15 days, 1997
- 1996 Ordinance Factory, Kolkata. Project: Study of stabilizer unit of AT Missiles, 15 days, 1996
- 1996 Jessop and Company Limited, Kolkata. 1 month, 1996

Computer knowledge

- **Operating Systems:** Windows, UNIX (including Windows administration).
- **Graphics & Design Software:** CorelDRAW, Adobe Photoshop, Alias Sketchbook Pro.
- **Web Development & Authoring Tools:** Adobe Dreamweaver.
- **CAD/CAM Software:** SolidWorks, CATIA, Rhinoceros, IDEAS, AutoCAD, Pro-E (PTC Creo), Inventor.
- **Programming Languages:** Visual Basic, C++.
- **CNC Programming:** CNC Milling with FANUC, CNC Lathe.
- **Office & System Administration Tools:** Microsoft Office Suite, C-Panel Administration.
- **Life Cycle Assessment Tools:** GABI.
- **Professional Experience in IT & Web Development:** Web Developer & System Administrator, CPDM, Indian Institute of Science, Bangalore (1998–2000, 2003–2007).

Professional Memberships

- **Fellow**, Institute of Engineers, India (F-1241253).
- **Chartered Engineer (India)** in Mechanical Engineering (F-1241253).
- **Member**, American Society of Mechanical Engineers (ASME), USA (Membership No. 100037361) (2009–Present).
- **Member**, Design Society (DS), UK (Membership No. DS00766) (2012–Present).
- **Member**, IEEE (Membership No. 90634796) (2014–2015).
- **Life Member**, Indian Science Congress Association (Membership No. L26809).
- **Member**, Special Interest Group (SIG) – Design Creativity, Design Society (2008–Present).
- **Member**, International Association of Engineers (IAENG) (Membership No. 130646) (2013–Present).
- **Senior Member**, Asia-Pacific Chemical, Biological & Environmental Engineering Society (APCBEES) (Membership No. 100789) (2013–Present).
- **Life Member**, Indian Society for Technical Education (ISTE) (Membership No. LM 107365).
- **Member**, DeScIn Academy of Design Sciences Foundation India.

Collaborations

International Collaborations

- **Dr. Sudarsan Rachuri** – Federal Program Officer, Advanced Manufacturing Office, Office of Energy Efficiency and Renewable Energy, Department of Energy, Washington, DC, USA. (Formerly Program Manager, National Institute of Standards and Technology (NIST), USA.)
- **Prof. Koustuv Dalal** – Professor in Public Health Economics, Mid Sweden University, Sweden.
- **Dr. Subburaj Karuppasamy** – Associate Professor, Department of Mechanical and Production Engineering Design and Manufacturing, Aarhus University, Denmark.
- **Dr. Shaw Feng** – Project Leader, National Institute of Standards and Technology (NIST), USA.
- **Prof. Jagjit Singh Sarai** – Head, International Manufacturing Institute for Manufacturing, Department of Engineering, University of Cambridge, UK.
- **Dr. Mukesh Kumar** – Associate Professor in Operations Management and the Head of the Industrial Resilience Research Group, Institute for Manufacturing, Department of Engineering, University of Cambridge, UK.
- **Prof. Christopher Berndt** – Distinguished Professor, Swinburne University of Technology, Australia.

National Collaborations

- **Prof. Amaresh Chakrabarti** – Chairman, Department of Design and Manufacturing (formerly Centre for Product Design and Manufacturing, CPDM), Indian Institute of Science, Bangalore, India.
- **Dr. Madhusudan Pal** – Scientist – F, Additional Director, DIPAS, DRDO. Ex-Director, Centers of Excellence (CoEs), Footwear Design and Development Institute (FDDI), Government of India.
- **Prof. G. S. Dangayach** – Professor (HAG), Department of Mechanical Engineering, Malaviya National Institute of Technology (MNIT), Jaipur.
- **Prof. Monica Sharma** – Professor, Department of Management Studies, Malaviya National Institute of Technology (MNIT), Jaipur.

Prabir Sarkar | Last update: May 2026 | IIT Ropar