



Curriculum Vitae
Prof. Rakesh Sehgal
Professor (HAG)
Mechanical Engineering Department
National Institute of Technology (NIT) Hamirpur
Hamirpur – 177 005 (H.P.), India

CURRICULUM VITAE

Name : **Prof. Rakesh Sehgal**

Date of Birth : **June 07, 1963**

Current Position : Professor (HAG), Mechanical Engg.

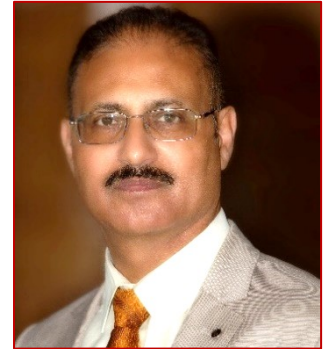
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Educational and Professional Qualification:

Examination or Degree	Board/ University	Year of Passing	Division (%age/CGPA)	Distinction/ Scholarship
Hr. Sec. Part-1 (Matric)	H.P. Board	1978	First with Distinction (78.33%)	Science Scholarship holder
Pre-Engineering	H. P. University	1981	First (70%)	5 th Position in H. P. University; Merit Scholarship holder
B.E. Mechanical	Annamalai University (T.N.)	Dec., 1985	First with Distinction (73.13%)	Distinction holder; H.P. Govt. Scholarship holder
M. Tech. (Design of Mech. Equip.)	I.I.T., Delhi	Jan., 1991	9.75 CGPA	First position in Design Stream
Ph.D.	Kurukshetra University	Nov, 2001	Ph.D. Topic: Developing Tribo-concepts Design Methodology for Improved Reliability and Maintenance of Mechanical Systems Ph.D. Supervisors: Late Prof. O.P. Gandhi (IIT Delhi) Prof. Surjit Angra (NIT Kurukshetra)	
Post Doctorate	UGC PDF Award	Sept., 2009- Sept., 2011	PDF Topic: Isoviscous and Thermal Studies of Some Non-Circular Journal Bearing Profiles Pursued research at Tribo-lab, Mech. Engg. Dept., NIT Hamirpur (H.P) and Final Thesis/Report submitted to UGC, New Delhi	

Professional Experience:

Total experience at different levels in Technical & Research Institutes: **37 Years**

Name of the Employer	Designation of the post and duration of employment period	Salary drawn at the time of leaving (Basic Pay, Allowances)	Brief description of duties	Reasons for leaving
NIT Hamirpur (H.P.)	Professor (HAG) Mech. Engg. (09-05-2023 to till date)	Rs. 2,24,100 + Allowances (Pay level 17)	Teaching and Research	Continuing
Ministry of Education (MOE), New Delhi	Director, NIT Srinagar, Hazratbal, Srinagar (J&K) (09-11-2017 to 08-05-2023)	Rs. 2,10,000/- + Rs. 11250/- Special allowance	Complete Administration	Completed Term (5½ Yrs.)
NIT Hamirpur (H.P.)	Professor Mech. Engg. (01-08-2017 to 08-11-2017)	Rs. 67,000/- + Rs. 10,000/- AGP	Teaching, Research and Administration	On Deputation as Director, NIT Srinagar (J&K)
Dept. of Technical Edu., H.P. Govt.	Director-cum-Principal Govt. Engg. College, Kangra (01-08-2014 to 31-07-2017) [3 Years]	Rs. 67,000/- + Rs.10,000/- AGP +Rs.3000/-SP	Administration (Establishment of New Engineering College)	Deputation period complete
NIT Hamirpur (H.P.)	Professor Mech. Engg. (25-07-2003 to 31-07-2014)	Rs. 59,690/- + Rs. 10,000/- AGP	Teaching, Research and Administration	On Deputation to H.P. Govt.
NIT Hamirpur (H.P.)	Assistant Professor Mech. Engg. (25-07-1995 to 24-07-2003)	Rs. 17,040/- + Allowances	Teaching, Research and Administration	Promotion as Professor
REC Hamirpur (H.P.)	Sr. Lecturer Mech. Engg. (14-04-1994 to 24-07-1995)	Rs. 3,700/- + Allowances (Rs. 3700-5700/-)	Teaching, Research and Administration	Promotion as Asstt. Prof.
REC Hamirpur (H.P.)	Lecturer Mech. Engg. (14-04-1988 to 13-04-1994)	(Rs. 700-1600/- revised to (Rs. 2200-4000/-)	Teaching and Research	Placement as Sr. Lecturer
H.P.P.W.D.	Graduate J.E. (01-06-1986 to 13-04-1988)	Rs. 1050/-	Bridge fabrication and Vehicle Maintenance	Aptitude for Teaching & Research

Awards/distinctions/honours/chairs/membership of National Committees:

1. Served as **Member**, National Executive of Indian Society of Theoretical and Applied Mechanics (ISTAM) w.e.f. Dec. 1998 to Dec. 2001.
2. Served as **Vice-President** of Indian Society of Theoretical and Applied Mechanics (ISTAM) w.e.f. Dec. 2001 to Dec. 2003.
3. **Chaired a technical session** in the "All India Seminar on Emerging Trends in Mechanical

Engineering” held at NIT Kurukshetra during March 29-30, 2005.

4. **Chaired a technical session** in the “National Conference on “Recent Developments and Future Trends in Mechanical Engineering” held at NIT Hamirpur during Nov.3-4, 2006.
5. Received **Best Teacher Award** for the year 2006-2007.
6. **Chaired a technical session** in the Global Conference on “Production and Industrial Engg.” Held at NIT, Jalandhar (Pb.) during March 22-24, 2007.
7. **Reviewer** for **Reliability Engineering & Systems Safety Journal (International), Journal of Engineering Design (International)**.
8. **Reviewer** for **International Journal of Precision Engineering and Manufacturing**, Reviewed manuscript No. E07-76 Titled “Cellular Manufacturing-The heart of Manufacturing, April 18, 2008.
9. **Awarded Post Doctorate Fellowship by UGC**, India for a period of 02 (two) years to work on the project “Isoviscous and Thermal Studies of Some Non-Circular Journal Bearing Profiles” w.e.f. Sept., 2009.
10. **Reviewer** for **International Journal of Materials and Manufacturing Processes**, Reviewed manuscript No. LMMP-2010-0339 titled “The new methods of graphite nodules detection in ductile cast iron”, Sept., 2010.
11. **Reviewer** for **The Arabian Journal for Science and Engineering B: Engineering**, Reviewed manuscript No. AJSE-ENG-D-10-00141 titled “Study of the influence of approach angle for ceramic cutting tool on chip formation based on response surface methodology”, Sept. 08, 2010.
12. Nominated as **Member, National Executive Committee of Indian Society of Theoretical and Applied Mechanics (ISTAM)** for two years w.e.f. Dec., 2010.
13. Nominated as **Member, National Executive Committee of Tribology Society of India (TSI)** for two years w.e.f. Dec., 2010.
14. **Reviewer** for **International Journal of Materials and Manufacturing Processes**, Reviewed manuscript No. LMMP-2011-0627 titled “Effect of process parameters on porosity during spray rolling of 7050Al”, Nov.,2011.
15. **Member, Organizing Committee of National Tribology Conference (NTC-2011)** held at IIT Roorkee during Dec.08-10, 2011.
16. **Chaired a technical session** in the “National Tribology Conference (NTC-2011) held at IIT Roorkee during Dec.08-10, 2011.
17. Received ‘**Best Paper Award**’ for paper “Effect of approaching angle on main cutting forces while turning Ti-6Al-4V alloy” in the international conference on Mechanical, Electronics and Mechatronics Engineering (ICMEME’2012) March 17-18, 2012, Bangkok, Thailand.
18. Received “**Best Paper Award**’ for paper “Influence of machining parameters on main cutting force and surface roughness during turning of AISI A2 steel alloy” in the International Academic Conference, June 9-11, 2013, Paris, France, Paper ID No. ENG-294.
19. **Reviewer** for **International Journal of Journal of Quality in Maintenance Engineering**, Reviewed manuscript No. JQME-04-2013-0015.R1 titled “Annual maintenance budget estimation for a plant system – Digraph model and matrix approach”, March,2014.
20. **Reviewer** for **International Journal of System Assurance Engineering and Management [Springer]**, Reviewed manuscript titled “Equipment redesign feasibility through maintenance-work-order records using fuzzy cognitive maps”, April,2014
21. **Reviewer** for **International Journal of Applied Research in Quality of Life**, Reviewed manuscript No. ARIQ-D-14-00074 titled “Modeling regional disparities for a balanced quality of life and apportioning public funding - a graph theoretical approach”, May, 2014.

22. **Chaired a technical session** in the International Academic Conference, June 8-12, 2014, Munich, Germany.
23. Nominated as **Member, Academic Council**, H.P. Technical University, Hamirpur (H.P.) w.e.f. August 01, 2014 to July 31, 2017 (**3 Years**).
24. Nominated as **Member, Senate of SLIET Longowal for a period of 2 years** w.e.f. March 02, 2015.
25. **Chaired a technical session** in the International Conference on Science, Management, Engineering & Technology (ICSMET 2015), March 18-19, 2015, Dubai, UAE.
26. Nominated as **Member, Academic Council**, Islamic University of Science & Technology (IUST), Awantipora, Kashmir (J&K) w.e.f. Jan. 24, 2018 to March 31, 2021 (**3 Years 2 Months**).
27. Nominated as **Member, Governing Board**, Institute of Technology, Zakura Campus, University of Kashmir (J&K) w.e.f. March 11, 2019 to March 10, 2022 (**2 Years**).
28. Nominated as **Member, Academic Council** of Baba Ghulam Shah Badshah University, Rajouri (J&K) w.e.f. Feb. 06, 2020 for a period of 02 years.
29. **Reviewer for Advances in Mechanical Engineering**, Reviewed manuscript entitled "Development of Hot Surfaces Generated by Friction Contacts of Titanium Alloy and Steel", June, 2020.
30. Nominated as **Member, Planning and Monitoring Board**, Central University of Kashmir (J&K) w.e.f. Nov. 06, 2020 to Nov. 05, 2022 (**2 Years**).
31. Nominated as **Member, State Steering Committee for Implementation of Technical Education Quality Improvement Programme (TEQIP) Phase-III** in the UT of J&K w.e.f. March 03, 2021.
32. **Reviewer for Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology**, Reviewed manuscript No. JET-20-0327.R1 titled "Control of Self Excited Rotor Disturbances in Three Lobe Journal Bearings Space Using Couple Stress Lubricant", May, 2021.
33. **Reviewer for Industrial Lubrication and Tribology**, Reviewed manuscript No. ilt-03-2021-0060 titled "Tribological study of TiO₂ Nanoparticles Modified with Stearic Acid as Additives in Lithium Grease", May, 2021.
34. Nominated as **Expert Member, Governing Council, J&K Skill Development Mission** w.e.f. September 14, 2021.
35. Title of **Honorary Professor** awarded by **Andijan Machine-Building Institute, Ministry of Higher and Secondary Education of the Republic of Uzbekistan** for making significant contribution to the development of science and technology in the area of material science; October, 2021.
36. Nominated as **Member**, Committee to Identify the Research Laboratories & Research Institutions Having R&D facilities at their premises and to formulate guidelines for admitting the Research Scholars admitted from such Institutions as PhD Candidates (**NIT Jalandhar, January 25, 2022**).
37. **Reviewer for Tribology International**, reviewed manuscript No. TRIBINT-D-22-00054 titled "Combined Effects of Cryogenic Treatment and Tempering on Microstructural and Tribological Features of AISI H13 Steel", March, 2022.
38. Nominated as **Member, Standing Complaint Scrutiny Committee (SCSC)** of AICTE, New Delhi, June, 2022.
39. Nominated as **Member**, Selection committee for faculty recruitment of NIT Jamshedpur, August 10, 2022.
40. **Reviewer for ASME Journal of Tribology**, reviewed manuscript No. TRIB-22-1269, "Characterization of magnetorheological brake in shear mode using high strength MWCNTs and fumed silica-based MR fluids at low magnetic fields", August, 2022.
41. **Reviewer for Industrial Lubrication and Tribology**, reviewed manuscript No. ilt-12-2022-0365,

“Enhanced lubrication by core-shell TiO₂ nanoparticles modified with PEG-400”, December, 2022.

42. **Editor, IUP Journal of Mechanical Engineering**, IUP Publications (A Division of ICFAI Society), Hyderabad, Telangana State, India

43. **Chaired a technical session in TribolIndia-2023**, an International Conference on Tribology, under the theme, “Sustainable Development through Tribology”, organized by the Department of Mechanical Engineering, National Institute of Technology Srinagar, Hazratbal, Srinagar (J&K) India from 5th – 7th Oct., 2023 under the aegis of Tribology Society of India

Management and Institutional Development Activities: 35 years

S. No.	From	To	Position held	Contribution
1.	Nov. 09, 2017	May 08, 2023	Director, NIT Srinagar (J&K)	Overall Administration
2.	Aug. 01, 2014	July 31, 2017	Director cum Principal, RGSEC Kangra (H.P.)	Setting up of a new Engineering College in Himachal Pradesh
3.	Jan. 09, 2014	July 31, 2014	Coordinator (Testing & Consultancy), NIT Hamirpur (H.P.)	Regulate testing and consultancy work undertaken by various teaching depts. and centres of NIT Hamirpur (H.P.)
4.	Nov. 15, 2010	Jan. 08, 2014	Dean (Faculty Welfare), NIT Hamirpur (H.P.)	Sponsorship of faculty for various courses, conferences, training, workshops etc., Implementation of PDA, Monitoring of civil works etc., Monitoring of all sponsored research projects undertaken by different depts./ centres
5.	Feb., 2008	Feb., 2010	Chairman, SUGC, NIT Hamirpur (H.P.)	Made UG Manual , Helping in taking important academic decisions.
6.	Feb., 2008	June, 2009	Coordinator, Industry-Institute Interaction, NIT Hamirpur (H.P.)	Secured membership of CII, Northern Region; Arranged lectures by Experts from Industry
7.	Feb., 2006	April, 2007	Dean (IRD&C), NIT Hamirpur (H.P.)	Made compendium of Rules and Regulations for the first time; Streamlined procedures for sponsoring faculty and staff for conferences, summer/ winter schools and training programmes
8.	Feb., 2006	April, 2007	Editor, Institute Information Brochure, NIT Hamirpur (H.P.)	Published first issue of Institute Information Brochure
9.	Feb., 2006	June, 2007	Member Senate SUGC, NIT Hamirpur (H.P.)	Contributed for taking important academic decisions.
10.	March, 2006	July, 2014	Member, Senate, NIT Hamirpur (H.P.)	Contributed for taking important academic decisions.
11.	Jan., 2004	March, 2009	Nodal Officer (Procurement) TEQIP, NIT Hamirpur (H.P.)	Purchased equipment & furniture for all the depts.

12.	Feb., 2004	Feb., 2008	Member, Exchange Purchase Committee, NIT Hamirpur (H.P.)	Contributed in purchase and successful installation of VOD
13.	July, 2004	Dec., 2005	Member , Academic Council, NIT Hamirpur (H.P.)	Contributed in drafting academic rules and regulations
14.	Jan. 29, 2004	Feb. 13, 2006	Head, Mech. Engg. Dept. , NIT Hamirpur (H.P.)	Established various advanced labs in the dept.
15.	March 01, 2000	March 12, 2000	Head, Mech. Engg. Dept. , NIT Hamirpur (H.P.)	Established various advanced labs in the dept.
16.	Oct. 2000	Aug., 2002	Proctor, REC Hamirpur (H.P.)	General discipline of students on and off campus.
17.	June, 1998	Oct., 1999	Co-ordinator, STBU of IREP , REC Hamirpur (H.P.)	Installation and maintenance of many solar devices in the state of H.P.
18.	May, 1997	Aug., 1999	Head, Mech. Engg. Dept. , REC Hamirpur (H.P.)	Designed various Labs and Machine layouts in the labs.
19.	Dec., 1993	April, 1996	Warden , Kailash Boys Hostel, REC Hamirpur (H.P.)	Added many new facilities to hostel by proper financial management
20.	July, 1993	July, 1997	Member, committee for implementation of Autonomous Status in R.E.C., Hamirpur (H.P.)	Prepared draft document for implementation of autonomous status
21.	July, 1992	June, 1994	Member, Admission Committee, REC Hamirpur (H.P.)	Streamlined admission process
22.	July, 1988	July, 1989	OIC, College Cricket Team, REC Hamirpur (H.P.)	To facilitate the college cricket team with sports gadgets etc.
23.	July, 1988	July, 1989	Incharge, Central Workshop, REC Hamirpur (H.P.)	Designed Layouts for installation of machines in various shops.

Important International/National MoUs Formulated for Academic & Research Collaboration:

S. No.	Name of the Organisation/ Department Involved	Month & Year of MoU	Major Areas of Collaboration/ Understanding
1.	S.A.P. Automations India Pvt. Ltd., New Delhi	March 01, 2023	To hold/conduct joint technology development, knowledge sharing, training, organization of visits within the areas of cooperation; sharing of facilities, know-how, design methods; to work and educate the students in: <ul style="list-style-type: none"> • Design building physics as per climate conditions • Use of decarbonized heat exchange for space conditioning

			Hybridization of renewable electricity and renewable heat
2.	Andijan Institute of Economics and Construction, Uzbekistan	Feb. 28, 2023	<ul style="list-style-type: none"> • To develop nano-thermoplast (polypropylene), thermoreactive (epoxy resin) and nano-filler composite materials; • optimize fabrication parameters through mechanical and tribological characterisation of the developed materials; • fabrication of gear and sleeve parts with nano-thermoplast and its composites and • development of polymer coatings for the working surfaces of cotton air transporter, screw conveyor belts, screw cleaner and distributors for cotton processing industry.
3.	Jammu & Kashmir Lake Conservation & Management Authority	Nov. 07, 2022	To identify the right type of laboratory equipment for Research & Monitoring Division, JKLCMA, exchange and generate mutually scientific data related to Dal-Nigeen lakes and other water bodies of JK, devise and work on joint strategies and programmes to maintain the better quality of water of Dal and Nigeen lakes, work for enhancement of the treatment efficiency of various STPs and to conduct joint capacity building programmes
4.	National Highways & Infrastructure Development Corporation Limited (NHIDCL), New Delhi	Oct. 17, 2022	To share knowledge on innovative ideas and technologies in the field of highway engineering and others; to work together as a team to achieve the national objectives.
5.	All India Council for Technical Education (AICTE), New Delhi	August 30, 2022	To assess the impact of Prime Minister Special Scholarship Scheme for the Union Territory (UT's) of Jammu & Kashmir and Ladakh on social, financial-self/family aspects, academic development, personality and confidence building, idea of nation and practicing faith, giving back to home state and future plan and the comparison of success among all 22 districts of the region.
6.	Jammu & Kashmir Lake Conservation & Management Authority	August 24, 2022	Testing and treatment of raw sewage at different sewage treatment plants for various contents using aluminium chloride (PAC) powder and sodium hypochlorite liquid.

7.	Centre for Invention, Innovation, Incubation and Training (CIIT) under Directorate of Skill Development, Govt. of J & K	August 18, 2022	Up-skilling in the area of manufacturing technology and automobile engineering; to increase the employability of engineering students and support MSMEs and local industries through CIIT; to promote the idea of innovation, incubation amongst students and technical manpower to develop new products and technologies and to promote technology start-ups.
8.	Sardar Vallabhbhai national Institute of Technology, Surat (Gujarat)	June 10, 2022	Joint academic programs at Graduate or Post Graduate Level, Organisation of joint events, conferences, seminars, symposiums, Supervision of visiting research scholars, Research collaboration.
9.	The Branch Centre of Retraining and Advanced Training of Academic Staff under the Tashkent State Technical University, Uzbekistan	March 04, 2022	Facilitate the development of contacts and cooperation in the field of education and training, assist in ongoing education reform for professors, teachers and study centre listeners and to facilitate the recognition of each other's vocational.
10.	Andijan Machine-Building Institute, Uzbekistan	Dec. 17, 2021	Joint academic programs at Graduate or Post Graduate Level, Organisation of joint events, conferences, seminars, symposiums, Supervision of visiting research scholars, Research collaboration.
11.	Tashkent State Transport University, Tashkent	Dec. 17, 2021	Joint academic programs at Graduate or Post Graduate Level, Organisation of joint events, conferences, seminars, symposiums, Supervision of visiting research scholars, Research collaboration.
12.	Andijan Machine-Building Institute, Uzbekistan	Dec. 17, 2021	Cooperation in Implementing the project "Development, Mechanical and Tribological Characterisation of Nano Thermoplast (polypropylene)/ Thermoreactive (epoxy resin)/Nano filler composites and Nano Polymer Coatings".
13.	Yeoju Technical Institute, Tashkent	Dec. 17, 2021	Joint academic programs at Graduate or Post Graduate Level, Organisation of joint events, conferences, seminars, symposiums, Supervision of visiting research scholars, Research collaboration.
14.	IIT Ropar (Pb.)	Nov., 2021	1. Collaborative academic and research activities involving students, staff and faculty. 2. Collaboration Institute for DST-

			AWADH Project
15.	Engineers for Sustainable Energy Solutions (ESES), Kentucky, USA	7 th June, 2021	Collaborative work to combat the rising issue of plastic waste pollution and its disposal in modern society to save economies, ecosystems and human health.
16.	Babol Noshirvani University of Technology (BNTU), Iran	26 th April, 2021	Collaborative academic and research activities involving students, staff and faculty.
17.	IIT Delhi, India	24 th Dec., 2020	Exchange of students for Internships and PhD Programmes.
18.	Ministry of Micro, Small and Medium Enterprises (MSME), Govt. of India, Nirman Bhavan, New Delhi	3 rd Dec., 2020	Provide advice on Process Design and Development, Product Design and Development, Value Engineering and Alternate material usage.
19.	All India Council for Technical Education (AICTE), New Delhi	20 th Nov., 2020	To conduct training programs for faculty of AICTE approved Institutions/ University Depts. to prepare them for being successful in a knowledge society.
20.	Department of Materials Science and Engineering, University of North Texas, Texas 76207, USA	Oct., 2020	To carry out joint research on tribomaterials under high temperature conditions.
21.	CSIR-Central Scientific Instruments Organisation, Chandigarh	11 th Nov., 2019	Joint research work, Exchange of staff through deputation on full-time/part-time basis, Impart training to staff, students and technical personnel.
22.	University of Sfax, Tunisia	Dec., 2018	Joint academic programs at Graduate or Post Graduate Level, Organisation of joint events, conferences, seminars, symposiums, Supervision of visiting research scholars, Research collaboration.
23.	National School of Engineers of Sfax, Tunisia	Dec., 2018	Joint academic programs at Graduate or Post Graduate Level, Organisation of joint events, conferences, seminars, symposiums, Supervision of visiting research scholars, Research collaboration.
23.	Advanced Level Telecommunication Training Centre, BSNL, Govt. of India Enclave, Raj Nagar, Ghaziabad, UP	5 th May, 2018	Design and Offering the special modules and Internship program for students of relevant courses curriculum, Joint organization of certified courses in areas of relevance, Extending the facilities of ALTTC, BSNL to enhance industrial exposure of the students.

24.	National Institute of Secondary Steel Technology (NISST), Mandi Gobindgarh (Pb.)	4 th April, 2018	Industrial visits and training of students and faculty, deputation of resource persons from NISST to engage relevant courses for Mechanical and MME Depts.
25.	IIT Delhi, India	8 th Feb., 2018	Exchange information on Teaching-Learning materials, jointly organize seminars, conferences, workshops or short-term continuing education programs, Exchange of faculty, staff and students, Joint guidance of research candidates.
26.	IIT Jammu (J&K)	24 th Jan., 2018	Exchange information on Teaching-Learning materials, jointly organize seminars, conferences, workshops or short-term continuing education programs, Exchange of faculty, staff and students, Joint guidance of research candidates.

Overseas Visits:

S. No.	Place (Country Visited)	Purpose of Visit	Dates of Visit
1.	SFAX (Tunisia)	To attend First Tunisia-India workshop on Tribology for Sustainable Development (TSD 2018), Dec.19-20, 2018, Hammamet Tunisia and signing of MOUs with University of SFAX and National School of Engineering, SFAX, Tunisia	Dec. 17-27, 2018
2.	Dubai (UAE)	To attend International Conference on Science, Management, Engineering & Technology (ICSMET 2015)	March 18-19, 2015
3.	Munich (Germany)	To attend Clute Institute International Academic Conference	June 08-12, 2014
4.	Paris (France)	To attend Clute Institute International Academic Conference	June 9-11, 2013
5.	Thailand (Bangkok)	To attend international conference on Mechanical, Electronics and Mechatronics Engineering (ICMEME'2012)	March 17-18, 2012
6.	Hiroshima (Japan)	To attend International Tribology Conference (ITC-2011)	Oct. 30-Nov. 03, 2011
7.	Lulea (Sweden)	To undertake training in Tribolab, Lulea University of Technology	Sept.25-Oct. 06, 2006
8.	Unna (Germany)	To inspect and get training on Lathe Tool Dynamometer in TeLC	Feb. 4-9, 2006
9.	Washington DC (USA)	To attend World Tribology Congress'05	Sept.,12-16, 2005
10.	Bangkok (Thailand)	To attend APO International Workshop	Aug.2-13, 1999
11.	Ebeltoft (Denmark)	To attend World Tribology Conference	June 7-10, 1998

12.	Los Angeles, San Diego, Atlanta (USA)	Personal Visit to University of San Diego to attend the Graduation Ceremony of my daughter	June 10-29, 2023
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**Funding: Research Project and Others: Completed- 06; Ongoing- 04
(Rs. 228.89 Lacs)**

S. No.	Client/Organisation's Name	Nature of Project	Duration of Project	Amount of Grant (INR)
1.	Science and Engineering Research Board, Technology Bhavan, New Delhi - 110016	Development of Novel WC-Cr ₃ C ₂ -Ni functionally graded composite coatings on Nickel-based C-263 superalloy for Nuclear application	03 Years (2023-26)	28.83Lacs
2.	Department of Science and Technology, International Division, Govt. of India	DST-FIST Project (Level 2) to strengthen the research facilities in the Mechanical Engineering Department, NIT Srinagar (J&K)	05 Years (2022-27)	102 Lacs
3.	Indo-Russia Joint Project under International Cooperation, Department of Science and Technology, International Division, Govt. of India	Design, Development, Theoretical and Experimental Study of Smart Tribological Coatings for Space Applications	03 Years (2022-25)	95 Lacs
4.	Indo-Uzbekistan Joint Project under International Cooperation, Department of Science and Technology, International Division, Govt. of India	Development, Mechanical and Tribological Characterization of Nano Thermoplast PP/ Thermoreactive ER/ Nano Filler Composites and Polymer Coatings	03 Years (2020-23)	22.5 Lacs
5.	Indo-Tunisia Joint Scientific Cooperation, Department of Science and Technology, International Division, Govt. of India	Joint research collaboration in nano-materials	03 Years (2018-21)	21.60 lacs
6.	Post Doctortae Research Fellowship Award, University Grants Commission, Govt. of India	Isovisious and Thermal Studies of Some Non-circular Journal Bearing Profiles	02 Years (2009-11)	24.75 Lacs
7.	Ministry of Human Resources Development (MHRD), Govt. of India	Experimental Investigation of the Thermal Behaviour of Elliptical and Off-set Halves Journal Bearings	02 Years (2004-06)	10.00 Lacs
8.	Ministry of Human Resources Development (MHRD), Govt. of India	Development of Mechatronics Lab	02 Years (2004-06)	13.00 Lacs
9.	Ministry of Human Resources Development (MHRD), Govt. of India	Design and Fabrication of Journal Bearing Test Rig to Study the Thermal Behaviour of Circular Journal Bearings (FIP)	02 Years (1995-97)	1.75 lacs

10.	Ministry of Human Resources Development (MHRD), Govt. of India	Modernization of Departmental Computational Lab.	02 Years (1992-94)	5.00 Lacs
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Consultancy Assignments:

S. No.	Client/Organisation's Name	Nature of Assignment	Duration of Assignment
1.	HPPWD, Mechanical Division, Hamirpur (H.P.)	Viscosity test of used oils of LMVs and HMVs	06 Months
2.	Power Generation Wing, HP State Electricity Board, Shahpur, Distt. Kangra	Testing of failed studs of Pelton Turbines	01 Month
3.	State Cable Car Corporation, Gulmarg, Gandola, Srinagar (J&K)	Non-Destructive Testing of few structures at Gandola Cable Car System	02 Months (Nov., 2017 to Dec., 2017)
4.	J & K State Transport Corporation	Safety audit of mechanized car parking system, Srinagar	04 Months (June, 2018 to Sept., 2018)
5.	Nuclear Research Laboratory, Zukura, Srinagar (J&K)	Testing of Chain Pulley Block of Radiation Source	02 Months (Dec. 2020 to Jan., 2021)

Membership of Professional Societies: 08 Nos.

1. Life member of the Institution of Engineers (India), Membership No. AM- 056576.
2. Life member of the Indian Society for Technical Education (ISTE), Membership No. LM-7980.
3. Life member of the Association for Machines and Mechanisms (AMM), Membership No. LM-059.
4. Life member of the Indian Society of Theoretical and Applied Mechanics (ISTAM), Membership No. L-369.
5. Life member of the Tribology Society of India (TSI), Membership No. LM-3690.
6. Member of American Society of Mechanical Engineers (ASME), Membership No. 000100165482
7. Life member of Materials Research Society of India (MRSI), Membership No. LMB-2053.
8. Society of Tribologists and Lubrication Engineers (STLE), Membership No. 78048.

Expertise/Areas of Specialization

- Design of Mechanical Equipment
- Bearings Tribology
- Materials Tribology
- Nano Tribology
- Micro and Nano Coatings
- Reliability Modeling & Evaluation
- Fault location and Failure cause identification
- Mechanism Synthesis & Analysis

Research Collaborations

1. Research Collaboration with Russia under DST Project since 2022
2. Research Collaboration with Tashkent State Technical University, Tashkent State Transport University, Tashkent and Andijan Machine-Building Institute Uzbekistan under DST Project since 2020
3. Research Collaboration with University of SFAX, SFAX, Tunisia under DST Project since 2017
4. Research & Academic Collaboration with IIT Delhi and IIT Jammu
5. Research Collaboration with School of Mechanical Engineering, University of Texas, USA
6. Research Collaboration with Prof. Brahm Prakash, TriboLab, LTU, Sweden

Brief Account of Research Interests with Special Focus on Tribology

Main research interests include:

- Synthesis and characterization (Mechanical, metallurgical/metallographic and tribological) of materials for aerospace, automobile, hot & cold rolling, tool & die and bio-medical applications. Materials such as adamite, piston alloys, stir cast aluminium-silicon alloys (hyper and hypoeutectoid), copolymers, titanium alloys, tool & die steels and polymer & nano-composites have been investigated for machining parameters optimization and tribological behaviour. Investigation of selected tool & die steels have also been carried out after subjecting them to varied cryogenic treatment cycles. Theoretical equations for modeling wear, friction and machining have been developed using various modeling techniques such as ANOVA, Box-Cox, Genetic Algorithm and validation of the model equations carried out.
- Synthesis and characterization (Mechanical, metallurgical/metallographic and tribological) of coatings (micro, nano; layered, composite; smart, adaptive, self-healing) for aerospace, automobile and bio-medical applications. The mechanical properties and wear behaviour of a nanoscale multilayer coating of Ti/MoS₂/Si/MoS₂ (170 nm thickness) has been investigated
- Synthesis and thermal analysis of metallic & polymer circular and non-circular hydrodynamic journal bearing profiles such as Elliptical, offset halves and Multi-lobe lubricated with commercial grade oils. Theoretical and experimental analysis of bearing profiles made of Aluminium, Bronze and Polymethylmethacrylate has been carried out with an objective to standardize design equations/process for non-circular journal bearings, optimization of the operational parameters and the available commercial grade oils.
- Graph theory and matrix approach for ranking of tribo-materials based on the material wear index; Hasse diagram approach for wear evaluation and ranking of tribo-materials; Graph theory and matrix approach for modelling of antifriction bearings to determine reliability index; Fault location in tribo-mechanical system (journal bearing lubrication system) using graph theory and matrix approach and Failure cause identification of tribo-mechanical systems (journal bearing oil supply system) based on fault-tree using a digraph approach.

Ph.D. Supervision: 18 (Awarded-11; On-going-07)

S. No.	Name of Candidate & ID	Year of Completion	Uni./Institute	Title of Thesis
1.	Sh. Suresh Dhiman 2K04/NITK/PhD-	Oct., 2008 (Awarded)	Kurukshetra University (Hy)	Assessment and Optimisation of Cutting Parameters during Machining

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2.	Sh. Mohit Dhiman 2K6-PhD-ME-06	Aug., 2010 (Awarded)	NIT Hamirpur (H.P.)	Development, Characterization and Parametric Optimization of Wear Resistant Piston Alloys
3.	Sh. Amit Chauhan 2K6-PhD-ME-05	June, 2011 (Awarded)	NIT Hamirpur (H.P.)	Experimental investigations of the behaviour of few non-circular journal bearings
4.	Ms. Jaspreet Kaur Bhatia 07411103	July, 2012 (Awarded)	NIT Jalandhar (Pb.)	Synthesis and Characterization of Soy Protein Concentrate Graft Copolymers and their Applications as a Particle Reinforcement in Biodegradable Composites
5.	Sh. P.K. Sood 2K6-PhD-ME-20	Aug., 2012 (Awarded)	NIT Hamirpur (H.P.)	Studies on stir cast aluminium alloys
6.	Sh. Sanjiv Kumar 2K6-PhD-ME-36	July, 2013 (Awarded)	NIT Hamirpur (H.P.)	Vibration control of rotating beams using active constrained layer damping (ACLD) treatment
7.	Sh. Nirmal Singh 2K6-PhD-ME-61	Oct., 2014 (Awarded)	NIT Hamirpur (H.P.)	Some investigations on cryogenically and non-cryogenically treated tools in turning
8.	Sh. Manoj Nayak 2K6-PhD-ME-91	Aug., 2016 (Awarded)	NIT Hamirpur (H.P.)	Investigating Machinability and Tool Wear/Performance of CBN Tool Inserts in Hard Turning of D6 Steel
9.	Sh. Mukund Dutt Sharma 2K6-PhD-ME-127	Aug., 2016 (Awarded)	NIT Hamirpur (H.P.)	Tribological Studies and Machining Parameterization of Titanium Alloys
10.	Sh. Sanjiv Katoch 2K6-PhD-MSE-169	March, 2018 (Awarded)	NIT Hamirpur (H.P.)	Effect of Cryogenic Treatment on Mechanical and Metallurgical Properties of Tool and Die Steels
11.	Sheikh Ghulam Mohd. 2012-PhD-FOE-169	August, 2021 (Awarded)	NIT Srinagar (J&K)	Structural Integrity Assessment of Welded and Concrete Structures using NDT Techniques
12.	Ms. Qurat-UI-Ain 2018PHAMEC006	Registered in 2018	NIT Srinagar (J&K)	Molecular Dynamics Simulation and Experimental Studies of Polymer Nano-composites
13.	Sh. Chandra Shekhar Singh 2018PHAMEC012	Registered in 2018	NIT Srinagar (J&K)	Metal Matrix Composite
14.	Sh. Himanshu Shekhar Gupta 2019PHSMEC002	Registered in 2019	NIT Srinagar (J&K)	Nano Lubrication
15.	Sh. Sanjay Jaswal 2019PHSMEC003	Registered in 2019	NIT Srinagar (J&K)	MR Fluid
16.	Sh. Vivek Singh	Registered in 2019	NIT Hamirpur (H.P.)	Materials Tribology
17.	Sh. Jashveer Singh	Registered in 2020	NIT Hamirpur (H.P.)	Atomistic Modelling

18.	Sh. Syed Faizan Altaf 2020PHAMEC	Registered in 2021	NIT Srinagar (J&K)	Materials Tribology (Coatings)
19.	Sh Shahnaz Bashir Bhat 2021PHAMEC008	Registered in 2021	NIT Srinagar (J&K)	Materials Tribology

Post-Doctoral Candidates Supervision: 01

S. No.	Name of Candidate	Year of Completion	Uni./Institute	Title of Thesis
1.	Dr. Vivek	August 2022	NIT Srinagar (J&K)	Study on stress and deformation characteristics of unpaved roads reinforced with untreated and treated coir geotextiles

M.Tech. Thesis Supervision: 16 Nos.

S. No.	Title of Thesis	Year	Category
1.	Machining parameter optimization of Titanium Grade-V in turning	July, 2010	Major
2.	Study of friction and wear characteristics of Titanium Grade-V	July, 2010	Major
3.	Influence of the stochastic roughness and wave texture on the performance of non-circular journal bearings	July, 2011	Major
4.	Experimental investigation of oil film behavior of finite journal bearings	July, 2011	Major
5.	Study on effect of surface texture on the performance of hydrodynamic journal bearings	July, 2011	Major
6.	Study of friction and wear behavior of Adamite under sliding and rolling condition	July, 2014	Major
7.	Thermal characteristics of elliptical and offset halves journal bearing profiles	July, 2014	Major
8.	Tribological behavior of biodegradable castor oil modified with copper oxide and zinc oxide nanoparticles	July, 2018	Major
9.	Friction and wear characterization of Titanium Grade-5 Alloy at Elevated Temperature	July, 2018	Major
10.	Effect of cryogenic treatment on friction and wear behaviour of Ti-3Al-2.5V titanium alloy	July, 2020	Major
11.	Nanomechanical and tribological characterization of self-lubricating MoS ₂ nanocoating on AMS 5898 for aerospace applications	July, 2021	Major
12.	Effect of nano-coating on tribological behavior of cryogenically treated Titanium Alloy ASTM 348 Ti-9 grade for aviation application	July, 2021	Major
13.	Effect of nanocoating on tribological behaviour of Ti-Alloys for biomedical applications-A comparative study	July, 2021	Major

14.	Effect of laser surface texturing and lubricant with MoS ₂ on the tribological properties of AISI 316 stainless steel (Ms. Nishtha; Enrollment No. 2020MMECIT002)	July, 2022	Major
15.	Nanomechanical and tribological characterization of adaptive MoS ₂ /Ag/CaF ₂ coatings for aerospace applications (Ms. Shazia Gul Jan; Enrollment No. 2020MMECMS005)	July, 2022	Major
16.	Tribological Properties of Zirconium Nitride (Zrn) and Calcium Difluoride (CaF ₂) Coating Deposited by Magnetron Sputtering On Bearing Steel SAE 52100 (Mr. Ishtiaq Hussain Sheikh; Enrollment No. 2021MMECIT003)	July, 2023	Major

B.Tech. Project Guidance: 45 Nos.

S. No.	Title of Project	Year	Category
1.	A rapid technique for design and performance evaluation of steady state journal bearings.	Nov.1997	Minor
2.	Isoviscous and thermal analysis of circular journal bearings.	May 1998	Major
3.	Computer aided design of multispeed gear box.	Nov.1998	Minor
4.	Thermal analysis of circular journal bearings: An experimental and computational approach.	May 1999	Major
5.	Iso-viscous analysis of circular, two lobe and elliptical bearings.	Nov. 1999	Minor
6.	Thermal analysis of circular and non-circular (two lobe, elliptical and orthogonally displaced) bearings.	May 2000	Major
7.	Synthesis of a four-bar mechanism using three-point accuracy method.	Nov. 2001	Minor
8.	Variable speed drive (Design and fabrication project).	April 2001	Major
9.	Thermal analysis of journal bearings: an experimental and theoretical approach.	April 2001	Major
10.	LBB analysis of integrity assessment of nuclear pressure tubes based on deuterium ingress.	Nov. 2002	Minor
11.	A report on design, analysis and fabrication of a six-legged walking machine- "Mech- Crab".	Aug. 2003	Major
12.	Synthesis and analysis of a patient chair for sitting and standing positions.	Nov. 2003	Minor
13.	Design and fabrication of four speed gear box.	April 2004	Major
14.	Design and fabrication of window operating mechanism.	April 2004	Major
15.	Development of quadruped walking robot.	Dec. 2004	Minor
16.	Iso-viscous analysis of two lobe and elliptical journal bearings.	Dec. 2004	Minor
17.	Study of machining characteristics of Al alloy A-390.	Dec. 2004	Minor
18.	Kinematics and dynamics of tricept robot.	May 2005	Major
19.	Development and fabrication of an automatic stamping machine.	May 2005	Major

20.	Study of the machining behaviour of high carbon steel of hyper eutectoid composition.	May 2005	Major
21.	Machinability behaviour assessment of medium carbon steels during machining.	Dec. 2005	Minor
22.	Design and fabrication of solar powered propeller boat.	May 2006	Minor
23.	Kinematic design of a new mechanism for windshield wipers.	Nov. 2006	Minor
24.	Study of effects of machining parameters on machining variables for EN31 steel.	May, 2007	Major
25.	Design of a new mechanism for windshield wipers for Maruti-800.	Dec.,2007	Minor
26.	Study of effect of cutting parameters on machining variables in turning of hardened EN31.	April, 2008	Major
27.	Wear & Friction studies of Adamite.	Nov., 2008	Minor
28.	Study of wear & friction characteristics of Adamite and EN-31 steel.	May, 2009	Major
29.	Tribological characteristics of aluminium alloys under dry sliding condition	Nov. 2009	Minor
30.	Comparative analysis of degradation of lubricating oil used by various car manufacturers and prediction of engine quality	Nov. 2009	Minor
31.	Study of microstructure and sliding friction & wear characteristics of hypereutectic aluminium silicon alloys	May, 2010	Minor
32.	Study of the effect of blade profiles & speeds on noise levels of condenser unit of air-conditioning system and ways to reduce it	May, 2010	Major
33.	Noise control of domestic air conditioner using muffler	May, 2010	Major
34.	A comparative erosive behavior study of different grade steels	Nov., 2010	Major
35.	A comparative erosive behavior study of different grade steels	May, 2011	Major
36.	Study, design and manufacturing of power screw mechanism and its control	Nov., 2011	Major
37.	Design and manufacturing of pick and place industrial robotic arm and its automatic control	April, 2012	Major
38.	Variable geometry track vehicle	Nov., 2012	Major
39.	Study of the effect of heat treatment on friction and wear characteristics of hot work tool steel (H 11) under dry sliding condition	Nov., 2012	Major
40.	Study of the effect of heat treatment on machining behavior of AISI 4340 steel	April, 2013	Major
41.	Synthesis, analysis and fabrication of a four-legged walking machine using six link mechanism	April, 2013	Major
42.	Study of various fin designs used for aerostat and their integration to the main envelope	May, 2014	Major
43.	Evaluation of performance of gasoline blended with 30% ethanol-butanol mixture at varying load conditions	May, 2014	Major

44.	Static and dynamic analysis of truck chassis	May, 2014	Major
45.	To Study the Tribological Behavior of Bio-Inspired Textures and Mechanical Characterization of AISI A2 Steel	June, 2023	Major

Ph.D. Thesis Adjudication: 38

S. No.	Name of Candidate	Year of Adjudication	University/ Institute	Title of Thesis
1.	Md. Azizuddin	2009	Osmania University, Hyderabad	Analysis of an Air-Conditioning System for Alternate
2.	Gundabattini Edison	2009	Osmania University, Hyderabad	Effective Valve Flow for Hermetic Compressor Optimization: Analysis & Design
3.	Lachiram	2010	Osmania University, Hyderabad	Investigation and Optimization of Process Parameters to Enhance the Performance of Microwave Antennas
4.	Suwendu Prasad Sahu	2010	Sambalpur University, Burla	A Study on Solid Particle Erosion Wear Response of Plasma Sprayed Fly Ash Coatings
5.	Ankush Anand	2011	SMVDU Katra (J&K)	Development of Design Methodology for Product Life Cycle Engineering
6.	Ramesh Chandra Singh	2012	University of Delhi	Thermohydrodynamic Analysis of Lubricated Piston Rings of Internal Combustion Engine
7.	Mukesh Eknath Shimpi	2013	Sardar Patel University, Gujarat	Numerical Models Associated with Some Problems in Lubrication
8.	Maughal Ahmed Ali Baig	2014	JNTU Hyderabad	Control of Base Drag with Micro Jets
9.	Darji Pranav Harshadbhai	2014	NIT Surat	Development of Mathematical Model to Determine Optimum Hollowness of Hollow Cylindrical Roller Bearings and Evaluation of Fatigue Life Improvement through Experimental and Theoretical Analysis
10.	Vivek Srivastava	2014	NIT Jalandhar (Pb.)	Dynamic Characteristics of Expanded Polypropelene under Multiple Loading
11.	Ramesh Chandra Singh	2014	NIT Surat (Gujarat)	Thermohydrodynamic Analysis of Lubricated Piston Rings of Internal Combustion Engines
12.	Kishan Lal Meena	2015	NITTR Chandigarh	An Experimental Study of Non-traditional Machining of Al/SiC-

				MMC's
13.	Bhuvnesh Bhardwaj	2016	SLIET Longowal (Pb.)	Mathematical Modeling and Selection of Machining Parameters for Optimization of Surface Roughness in Metal Processing
14.	Vivek Kumar	2017	SLIET Longowal	Investigation of Structural Dynamics and Ride Comfort of Rail Vehicle System
15.	Satish Kumar	2018	MDU, Rohtak (Hy.)	Investigation of Dielectric for Machining of Nickel- Based Superalloy using Electrical Discharge Machining
16.	Solanki Mitulkumar Thakorbhai	2018	NIT Surat (Gujarat)	Estimation of Static Load Carrying Capacity of a Layered Cylindrical Hollow Roller Bearing Through Numerical and Experimental Techniques
17.	Ruchin Kacker	2018	NIT Jalandhar (Pb.)	Investigations on Stress Triaxiality for Unified Strength Theory and Anisotropy for Mixed Mode Fracture
18.	Suneev Anil Bansal	2109	Panjab University, Chandigarh	Synthesis and Characterization of Polymer/Graphene Oxide Based Composite Materials for Mechanical Applications
19.	Vipin Kumar Sharma	2019	DTU Delhi	Performance Studies of Textured Journal Bearing
20.	Jasleen Kaur	2019	NITTTR Chandigarh	Parametric Study of Metal Flow in Closed Die Forging
21.	Irfan Ul Haq	2019	SMVDU, Katra (J&K)	Evaluation of Mechanical and Tribological Performance of Aluminium 7075 Alloy
22.	Tarun Bhardwaj	2019	NIT Allahabad (UP)	Laser Additive Manufacturing of Maraging steel and Titanium-Molybdenum alloy
23.	Rityuj Singh Parihar	2019	NIT Raipur (Chhattisgarh)	Development, Characterization and Modeling of Functionally Graded Cemented Tungsten Carbide for Industrial Applications
24.	Ravi Kumar Ranjan	2019	NIT Silchar (Assam)	Surrogate Based Probabilistic Performance Assessment of Sandwich Plates
25.	Shivdev Singh	2020	NIT Jalandhar (Pb.)	A Study on Properties of Aluminium Matrix Hybrid Composites
26.	Jasbir Singh	2020	NIT Kurukshetra	An Investigation on Mechanical & Tribological Behaviour of

			(Hy.)	Nanostructured Weld Clad
27.	Kummitha Obula Reddy	2020	NIT Silchar (Assam)	Numerical Analysis of Mixing and Combustion of a Hydrogen Fueled Scramjet Combustor using Strut Fuel Injectors and Cavity Flame holders
28.	Hussain Mahamed Sahed Mostafa Mazarbhuiya	2020	NIT Silchar (Assam)	Design and Development of an Asymmetric Blade H-Darrieus Vertical Axis Wind Turbines for Built Environment
29.	Ravi Raman Sekhar	2020	Symbiosis International (Deemed University), Pune (Maharashtra)	Investigation of Cutting Forces, Tool Wear and Surface Morphology in Turning of Advanced Metal Matrix Composites
30.	Sourabh Bhaskar	2020	MNIT Jaipur	Mechanical and Sliding Wear Performance of AA2024 Hybrid Alloy Composite Materials: Effect of Ceramic-Graphite Particulate Combinations
31.	Anubhav Taheem	2021	NIT Jalandhar	Design and Experimental Investigations of Solar Dryer for Apricot with Heat Storage
32.	Vikas Sharma	2021	MNIT Jaipur	Evaluation of Mechanical and Abrasive Wear Performance of Ceramic Particulate-Fiber Reinforced Epoxy Polymer Composite Materials
33.	D. V. Srikanth	2022	JNTU Hyderabad	Theoretical Investigation of a Tilting Pad Thrust Bearing for large Vertical Machines
34.	M. Arangarajan	2022	Annamalai University (T.N.)	Experimental Analysis of Emission and Combustion Characteristics of CRDI Diesel Engine Using Biodiesel Blends at High Injection Pressure with SCR
35.	Dinesh Kumar	2022	NIT Kurukshetra (Hy)	Mechanical and Tribological Behavior of Ultrasonic Assisted Magnesium based Metal matrix Hybrid Composites
36.	Stanley Samlal	2023	Hindustan Institute of Technology & Science, Padur, Chennai (TN)	Impact Response of Foam Core Sandwich Panels with Hybrid Face Sheet
37.	Mohammad Arif	2023	NIT Jalandhar (Pb.)	Study of Textured Journal Bearing Performance for No-Newtonian Rheology of Lubricants

38.	Dheeman Bhuyan	2023	NIT Meghalaya	Investigation of Blood Flow Phenomena and Introduction of Pulsatility during Cardiopulmonary Bypass
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Key Note address / Invited talks delivered at various International/National Conferences, Seminars and Workshops: 51 Nos.

S. No.	Title of Lecture/ Lecture Series	Date, Place and Programme in which lectures delivered	Other relevant information
1.	Two- Dimensional and Three-Dimensional Transformations in Geometric Modeling	4 th Nov. 1996, Dept. of Defense Research & Development, New Delhi, CEP course on "Operational Research and Statistics in Design and Development" 28 Oct-08 Nov. 96,	For Sr. Officers (Scientists) of DRDO
2.	Acoustic diagnosis & fault detection prior to failure	Jan. 16, 1998, CII Chandigarh, Seminar and Expert Visit on Vibration in Machinery and its Control	For engineers working in industry
3.	Materials for Tribological Applications	Dec. 23, 2003 to Jan 4, 2004, NIT Hamirpur (H.P.) AICTE-ISTE STP on Advances in Manufacturing Systems	For faculty of Engg. Institutions
4.	Selection and Layout of Turbines	Dec. 16-29, 2002, NIT Hamirpur (H.P.) ISTE STC on Small Hydro Power	For faculty of Engg. Institutions
5.	Design of Turbines	Dec. 16-29, 2002, NIT Hamirpur (H.P.) ISTE STC on Small Hydro Power	For faculty of Engg. Institutions and industry people
6.	Selection and Layout of Turbines	May 07-11, 2007, NIT Hamirpur (H.P.) TEQIP STC on Small Hydro Power	For faculty of Engg. Institutions and industry people
7.	Design of Turbines	May 07-11, 2007, NIT Hamirpur (H.P.) TEQIP STC on Small Hydro Power	For faculty of Engg. Institutions and industry people
8.	Computer aided design	June 02-13, 2008, NIT Hamirpur (H.P.) AICTE/ MHRD STC on CAD/CAM/Optimization Techniques	For faculty of Engg. Institutions and industry people
9.	Green Productivity – Concept and Approach	June 16-20, 2008, NIT Hamirpur (H.P.) AICTE/MHRD STC on Sustainable energy generation and environmental management	For faculty of Engg. Institutions and industry people
10.	Industry-Institute Interaction	June 30- July 11, 2008, NIT Hamirpur (H.P.) AICTE/MHRD Orientation programme for technical teachers	For faculty of Engg. Institutions and industry people
11.	Pneumatic and hydraulic machine and mechanism control for Mechatronics equipment control	July 12-21, 2008, NIT Hamirpur (H.P.) AICTE/MHRD STC on Mechatronics and Robotics	For faculty of Engg. Institutions and industry people

12.	Tribo-testing	Nov. 30-Dec. 04, 2009, SVNIT Surat (Gujarat) AICTE/MHRD STC on Metallurgical Aspects of Tribology	For faculty of Engg. Institutions and industry people
13.	Tribo-surfaces and their characterisation	Nov. 30-Dec. 04, 2009, SVNIT Surat (Gujarat) AICTE/MHRD STC on Metallurgical Aspects of Tribology	For faculty of Engg. Institutions and industry people
14.	Tribo-testing	June 01, 2010; Dept. of Chemistry, NIT Jalandhar	For faculty and PG students/RS
15.	Oil analysis-An effective condition monitoring tool	June 21-25, 2010, NIT Hamirpur (H.P.) AICTE/MHRD summer school on Condition Monitoring of Plant & Machinery	For faculty of Engg. Institutions and industry people
16.	CAD/CAM-An Overview	Oct. 22, 2010, Invited Talk Delivered at DTE, Sundernagar (H.P.)	For faculty, guests and students
17.	Use of tools of education technology	Feb.27, 2011, Invited talk delivered at Himalayan Group of Professional Institutions, Kala Amb (H.P.)	For faculty of Engg. Institutions
18.	Tribo-testing	May 21, 2011, Expert Lecture delivered in National Conference on Advances in Mechanical Engineering (NCAME-2011), UIET, Punjab University, Chandigarh	For participants of conference, faculty and students of UIET
19.	Engineering Mechanics	July 16-20, 2012, Expert lectures delivered during FDP on Engineering Mechanics, LPU, Jalandhar (Pb.)	For faculty of LPU, Jalandhar
20.	General Research Methodologies & Research Initiatives in Tribology	July 12, 2013, Expert lecture delivered during TEQIP-II Workshop on Research Methodologies, UIET, Panjab University, Chandigarh	For faculty of Engg. Institutions, Universities & Industry Officials
21.	Condition Monitoring of Bearings	July 18, 2013, Expert Lecture delivered during TEQIP-II Workshop on Condition Monitoring of Plant & machinery, Mech. Engg. Dept., NIT Hamirpur (H.P.)	For faculty of Engg. Institutions, Universities & Industry Officials
22.	Condition Monitoring Through Oil Analysis	July 20, 2013, Expert Lecture delivered during TEQIP-II Workshop on Condition Monitoring of Plant & machinery, Mech. Engg. Dept., NIT Hamirpur (H.P.)	For faculty of Engg. Institutions, Universities & Industry Officials
23.	Student Centred Learning and Tools of Education Technology	August 03, 2013, Expert Lecture delivered during TEQIP-II Induction Training Programme on "Effective Teaching Learning Process (ETLP-13)", Aug. 03-04, 2013, NIT Hamirpur (H.P.)	For faculty of NIT Hamirpur (H.P.)
24.	Experimental and Theoretical Thermal Analysis of Bronze Elliptical and Offset-halves Journal Bearing Profiles	Oct. 15, 2013, Expert Lecture delivered during "International Conference on Advances in Tribology and Engineering Systems" held at GTU, Oct. 15-17, 2013, Ahmedabad, Gujarat.	For faculty of Engineering Institutions and Industry Officials

25.	Undergraduate Projects - Application of Concepts for Design, Analysis & Fabrication	May, 02, 2014, Expert lecture during FDP on "Emerging Research Trends in Engineering & Technology" held in Mechanical Engg. Dept., IFTM University, Moradabad (U.P.)	For faculty and students of Mechanical Engg. Dept.
26.	Research Initiatives in Tribology	May, 03, 2014, Expert lecture during FDP on "Emerging Research Trends in Engineering & Technology" held in Mechanical Engg. Dept., IFTM University, Moradabad (U.P.)	For faculty of Mechanical Engg. Dept.
27.	Fluid Film Lubrication and Hydrodynamic Bearings	June 26, 2014, Expert Talk delivered during "6th Summer School in Tribology" organized by IIPM, Gurgaon; DST, New Delhi; TSI, Faridabad and Indian Oil R & D Centre, Faridabad during June 23-27, 2014.	For faculty of various Engg. Institutions and Officials from Industry
28.	Research Initiatives in Tribology	June 27, 2014; Key Note Address delivered during "International Conference on Mechanical Engineering, Automation & Intelligent Computing" held at Corporate Institute of Science & Technology, Bhopal during June 27-28, 2014	For faculty and participants of the conference
29.	Thermal Analysis of Bronze Elliptical and Offset-halves Journal Bearing Profiles: An Experimental Approach	Nov. 14, 2014; Expert Talk delivered during "Workshop on Industrial Tribology and Applications" held at NIT Surat during Nov. 14-15, 2014	For faculty and participants of the workshop
30.	Advances in Research of Tribological and Material Considerations in Design of Machine Elements	April 11, 2015; Invited Expert Talk delivered during Tech Fest at JNGEC Sundernagar	For faculty and students
31.	Tribology and Transportation Systems	June 15, 2015; Invited Key Note Talk delivered during "Workshop on Science of Transportation Systems" held at NIT Hamirpur (H.P.) during June 15-19, 2015	For faculty of various Engg. Institutions and Officials from Industry
32.	Evolution of Technical Education in India and the way Forward for 21st Century Technical Institutions	Oct. 01, 2015; Invited Key Note Talk delivered during "ISTE Section Annual Convention "SAC-15", NIT, Hamirpur (H.P.)	For faculty of various Engg. Institutions and Students
33.	Research Initiatives in Tribology	Oct. 03, 2015; Invited Expert Lecture delivered at NITTTR, Chandigarh	For faculty and students of Mech. Engg. Dept.
34.	Thermal Analysis of Elliptical and Offset-halves Journal Bearing Profiles: An Experimental Approach	December 19, 2018; Invited Key Note Talk delivered during First Tunisia-India workshop on Tribology for Sustainable Development (TSD 2018), Dec.19-20, 2018, Hammamet Tunisia	For university faculty and participants

35.	Student-Centered Learning and the Tools of Education Technology	April 02, 2019; Invited Talk delivered during Induction Training Programme on “Pedagogy” organized from April 01-05, 2019 at NIT Srinagar (J&K)	For faculty of NIT Srinagar and other Universities and Institutions
36.	Oil Analysis: A Predictive and Proactive Maintenance Tool	June 18, 2019; Expert Talk delivered during International Symposium on “Tribology for Sustainability” organized from June 17-21, 2019 at NIT Srinagar (J&K)	For faculty of NIT Srinagar and other Universities and Institutions
37.	The New Path in Technical Education Post COVID 19 Outbreak	Sept. 08, 2020; Expert Talk delivered during an International Webinar organized by ICARE, Haldia Group of Institutions, West Bengal	For faculty, Research Scholars and Students of Haldia and other Institutions
38.	Developments in Materials Tribology	Sept. 15, 2020; Expert Talk delivered during one week Online Short-Term Course on “Future Scope in Engineering Materials and Tribology” organized by Mechanical Engineering Department, NIT Jalandhar from Sept. 15-19, 2020	For faculty, Research Scholars and Students of NIT Jalandhar and other Institutions/ Organisations
39.	Tribomaterials- Synthesis and Characterization	Jan. 04, 2021; Expert Talk delivered during one week Online Short-Term Course on “Basics of Tribology and Its Industrial Engineering Applications (BTIEA-2021)” Jan., 04-08, 2021	For faculty, Research Scholars and Students of MNIT Jaipur and other Institutions/ Organisations
40.	Biomaterials for Societal Needs	March 30, 2021; Expert Talk delivered on International Doctor’s Day, Shere Kashmir Institute of Medical Sciences, Srinagar (J&K)	For faculty, resident doctors, nursing and paramedical staff of SKIMS
41.	Biomaterials for Societal Needs	Sept., 09, 2021; Expert Talk delivered on Royal Charter Day-2021, Mizoram State Centre- IE(India)	For Members of IE(India), Mizoram State Centre and Faculty of NIT Mizoram
42.	Post Covid-19 Opportunities	January 8, 2022; Expert Talk delivered in the 2 nd PAN NIT HSS International Conference on Resilience and Transformation for Global Restructuring, MNIT Jaipur (Rajasthan)	For International & National Participants from Education & Research Organisations
43.	Biomaterials for Societal Needs	June 1, 2022 ; Expert Talk delivered in the One Week Training Program on “R&D Equipment Material Processing & Advanced Functional Material Characterization Techniques” under Synergistic Training program Utilizing the Scientific and Technological Infrastructure (STUTI); May 30-June 05, 2022, Sponsored by: Department of Science & Technology;	For faculty & Research Scholars from different Universities/ Institutions across the country

		Organised by Dept. of Physics, Vansathali Viyapeeth & NIT Srinagar (J&K)	
44.	Biomaterials for Societal Needs	July 1, 2022; Expert Talk delivered in the One Week Training Program on “Material Characterization Techniques” under Synergistic Training program Utilizing the Scientific and Technological Infrastructure (STUTI); June 28-July 04, 2022, Sponsored by: Department of Science & Technology; Organised by Dept. of Physics, AMU & Dept. of Physics, NIT Srinagar (J&K)	For faculty & Research Scholars from different Universities/ Institutions across the country
45	Tribology of Biomaterials	Sept. 02, 2022; Expert Talk delivered in the One Week High End Workshop on “3D Printing, Nano-Tribology and Characterization of Materials” August 29 – Sept. 03, 2022, Sponsored by: Department of Science & Technology; Organised by Dept. Mechanical Engg., NIT Srinagar (J&K)	For faculty & Research Scholars from different Universities/ Institutions across the country
46.	Tribomaterials-Synthesis and Characterisation	Sept.10, 2022; Expert Talk delivered in the One Faculty Development Program on “Advances in material Processing and Additive Manufacturing” Sept. 01-10, 2022, Organised under Electronics and ICT Academy, PDPM IIITDM Jabalpur (MP)	For faculty & Research Scholars from different Universities/ Institutions across the country
47.	Tribology of Biomaterials	Feb.26, 2023; Expert Talk delivered in the DST (SERB) Karyashala on “Smart Manufacturing and Circular Economy” Feb. 20-26, 2023, Organised by Department of Production and Industrial Engineering, PEC, Chandigarh	For M.Tech. students & Research Scholars from different Universities/ Institutions across the country
48.	Current Status and Future Prospects of Solar Energy in Jammu and Kashmir	March 18, 2023; Expert Talk delivered during one week training programme on “Design & Installation of Solar PV System” March 16-21, 2023, Organised by Division of Renewable Energy Engineering (REE), College of Agricultural Engineering and Technology SKUAST-Kashmir, Shalimar, Srinagar (J&K)	UG/PG Students and Unemployed Youth of J&K
49.	Required Interventions for Assured Improvement in Technical Education in Himachal Pradesh	May 02, 2023; Expert Talk delivered during State Level Conference cum Review Meeting on “Improving Technical Education in Himachal Pradesh: Vision to Action” May 01-02, 2023, Organised by The Department of Technical Education, Vocational and Industrial Training, Himachal Pradesh at Rajiv Gandhi Govt. Engineering College, Kangra (H.P.)	Directors/Principals of Engineering Colleges, Polytechnics and ITIs located in HP
50.	Tribology of Biomaterials	July 16, 2023; Expert Talk delivered at the Department of Mechanical Engineering, Faculty of Engineering & Technology,	For Faculty, Research Scholars & M.Tech. students

		Annamalai University (T.N.)	from different Departments
51.	Tribological and Magnetorheological Properties of Smart Fluids	Oct. 06, 2023; Keynote/Invited Talk delivered in TribolIndia-2023, an International Conference on Tribology, under the theme, "Sustainable Development through Tribology", organized by the Department of Mechanical Engineering, NIT Srinagar (J&K) under the aegis of Tribology Society of India	For Faculty, Research Scholars and participants from industry within and outside India

Conferences/Short Term Courses/Training Programs Organized: 18 Nos.

S. No.	Name of Conference/ Seminar/ Course	Sponsored by	Dates
1.	National seminar on "Vibration in Machinery and its Control" in association with NRTC Parwanoo (H.P.)	CII, Chandigarh	Jan. 16, 1998
2.	46th Congress of ISTAM- An International Event R.E.C., Hamirpur (H.P.) (Now NIT, Hamirpur (H.P.))	AICTE, DRDO, CSIR, DST, ISTAM	Dec.19-22, 2001
3.	National Conference on "Emerging Energy Technologies (NCEET-2003)", NIT Hamirpur (H.P.)	CSIR, HIMURJA, DRDA	March 28-29, 2003
4.	National Level Technical Festival NIMBUS'04(for students) NIT Hamirpur (H.P.)	AICTE, CSIR, DST Shimla, BBTTD	March 19-21 2004
5.	Short Term Training Programme for Entrepreneurs on "Welding Processes" NIT Hamirpur (H.P.)	TEQIP, NIT Hamirpur	Dec 20-24, 2004
6.	National Level Technical Festival NIMBUS'05(for students) NIT Hamirpur (H.P.)	TEQIP, Microsoft, Agmatel	March 18-20, 2005
7.	Short Term Training Programme on "Refrigeration & Air-conditioning Maintenance Practice"	TEQIP-NIT Hamirpur	May 25-30, 2005
8.	Induction Training Programme on "Teaching Methods"	TEQIP- NIT Hamirpur	Jan 28-29, 2006
9.	National Conference on "Recent Developments and Future Trends in Mechanical Engineering"	TEQIP- NIT Hamirpur, MTAB	Nov. 03-04, 2006
10.	STC on "Fundamentals of Tribology"	TEQIP- NIT Hamirpur, DUCOM, GE, Bangalore	July 09-20, 2007
11.	Short Term Training Programme on "Conventional and advanced machining processes"	TEQIP- NIT Hamirpur	Dec.03-07, 2007
12.	Short Term Training Programme on "Mechatronics & Robotics"	AICTE/MHRD	July 12-21, 2008
13.	Summer School on "Condition Monitoring of Plant and Machinery"	AICTE/MHRD	June 21-25, 2010
14.	Application of power operated tools (metal cutting and wood working)	AICTE/MHRD	July 05-09, 2010

15.	Faculty development programme on “Engineering Mechanics”	LPU, Jalandhar	July 16-20, 2012
16.	STC/Workshop on “Fundamentals of Tribology”	TEQIP- NIT Hamirpur (H.P.)	May 26-30, 2014
17.	Co-Chair of 1 st International Scientific Conference on “Modern Materials Science: Topical Issues, Achievements and Innovations” (ISCMSTIAI-2022)	Tashkent State Transport University, NIT Srinagar, Tashkent Institute of Engineers of Irrigation and Mechanization of Agriculture, Andijan Machine-Building Institute, Tashkent Chemical Technological Institute, Kazan Federal University (Russia), Tashkent State Agrar University, Karshi Engineering and Economic Institute	March 4-5, 2022
18.	Coordinator, Training Program on “Publishing Scholarly Content with IEEE”	LRC, NIT Srinagar (J&K)	August 04, 2022

Seminars/Symposia/Workshops Attended: 24 No.

S. No.	Name of the Conf./Seminar/ Sym./Workshop	Place & Sponsored by	Dates
1.	National Seminar on Power Scenario in India	R.E.C. Hamirpur (H.P.)	Oct.14-15, 1995
2.	National Conference on Recent Advances in Mechanical Engineering	R.E.C. Kurukshetra (Hy)	March 7-8, 1997
3.	National Symposium on Recent Trends in Theoretical and Applied Mechanics	R.E.C. Kurukshetra (Hy)	Nov. 15, 1997
4.	National Seminar on Maintenance and Condition Monitoring	G E College, Trissure (Kerala)	Feb. 14, 1998
5.	International Conference on Tribology NORDTRIB'98	Ebeltoft, Denmark	June 7-10, 1998
6.	All India Seminar on Recent Trends in Manufacturing	HMT Pinjore	April 24, 1999
7.	Workshop on Product Design and Development for Supporting Industry	Bangkok, Thailand	Aug 2-13, 1999
8.	All India Seminar on Emerging Trends in Mechanical Engineering	NIT Kurukshetra (Hy)	March 29-30, 2005
9.	National Conference on Recent Developments and Future Trends in Mechanical Engineering	NIT Hamirpur (H.P.)	Nov. 03-04, 2006
10.	Global Conference on Production and Industrial Engg.	NIT Jalandhar (Pb.)	March 22-24, 2007
11.	National Workshop on Plasma Surface Interactions and Processing	NIT Hamirpur (H.P.)	May 25-27, 2009

12.	National seminar on “Nuclear Technology for Nation Building (NTBT-09)”	INS & NIT Hamirpur (H.P.)	August 08, 2009
13.	National Workshop on “Public Key Infrastructure (PKI)	C-DAC, Bangalore & NIT Hamirpur (H.P.)	Feb. 12-13, 2011
14.	Workshop on Right to Information Act-2005	HIPA, H.P. Govt. & NIT Hamirpur (H.P.)	Feb.26, 2011
15.	International Tribology Conference ITC-2011	Hiroshima, Japan	Oct. 30- Nov. 03, 2011
16.	International conference on Mechanical, Electronics and Mechatronics Engineering (ICMEME’2012)	Thailand (Bangkok)	March 17-18, 2012
17.	International Conference on Production and Industrial Engineering (CPIE-2013)	NIT Jalandhar (Pb.)	March 29-31, 2013
18.	Regional Workshop on Industry-Academia Collaboration for Greater Employability (Northern Region)	NITTR, Chandigarh & TEQIP-II	June 27-28, 2013
19.	Clute Institute International Academic Conference	Paris, France	June 9-11, 2013
20.	International Conference on Advances in Tribology and Engineering Systems	Ahmadabad, Gujarat	Oct. 15-17, 2013
21.	Workshop on Leadership Development in Higher Education for Vice-Chancellors	NIEPA, New Delhi	Dec. 7-8, 2017
22.	Skill and Entrepreneurship Conclave- Talaash (Building Human Capital: Skill-Innovation-Entrepreneurship)	SKICC, Srinagar, (J&K)	May 12-13, 2018
23.	Workshop on Preventive Vigilance and Vigilance Awareness	MNNIT Allahabad	Sept. 13-14, 2018
24.	Workshop on Leadership Development in Higher Education for Vice-Chancellors	NIEPA, New Delhi	Jan. 24-25, 2019

Short Term Courses Attended: 22 Nos.

S. No.	Name of course/Workshop	Place & Sponsored by	Dates
1.	Summer school on “Product Development”	I.I.T. Delhi; QIP	June 2–16, 1992
2.	Winter school on “Computer Aided Drafting”	MNREC Allahabad; ISTE	Dec. 20, 1993 to Jan. 1, 1994
3.	Summer school on “Metal Forming – Theory and Practice”	PEC Chandigarh; ISTE	June 6-18, 1994
4.	Summer school on “Direct Energy Conversion Devices”	U.O.R., Roorkee; QIP	June 21–July 5, 1994
5.	Programme on “Performance Appraisal & Development Systems”	R.E.C. Hamirpur (H.P.); ISTE	May 26–28, 1995

6.	Winter school on "Bearing Design and Analysis"	I.I.T., Delhi; QIP	Dec. 8-14, 1996
7.	Summer school on "New Concepts and Methodologies for Innovative Industry – Institute Interaction"	R.E.C, Hamirpur (H.P.); ISTE	July 7 –12, 1997
8.	Winter school on "Computer Aided Maintenance"	I.I.T., Delhi; QIP	Dec.8-13, 1997
9.	Workshop on "Product Development and Design for Supporting Industry"	Thailand Productivity Institute, Bangkok	August 2-13, 1999
10.	Short term course on "Reliability and Maintenance of Plant and Machinery"	I.I.T. Delhi; QIP	Dec.4-8, 2000
11.	Training programme on "Standard rules and procedures of the World Bank for procurement of goods, works & services"	NIFM Faridabad, World Bank; TEQIP-II	Feb.17-28, 2003
12.	STTP on "Visual Basic 6.0"	NIT Hamirpur (H.P.); SPIC & NITTTR Chandigarh	Feb. 18-29, 2004
13.	Short term course on "Melt Treatment in Foundries"	NIT, Hamirpur (H.P.); AICTE-ISTE	June 14-18, 2004
14.	STTP on "C++"	NIT Hamirpur (H.P.); SPIC & NITTTR Chandigarh	Aug. 14-22, 2004
15.	Workshop on "Student Counselling"	NIT Kurukshetra (Hy)	March 12, 2005
16.	Training in Tribology lab.	Tribo-lab, Lulea University of Tech., Sweden	Sept. 26- Oct. 06, 2006
17.	National Workshop on "Industry Institute Interaction (NWIII-2007)"	NIT Kurukshetra (Hy)	Feb. 19-20, 2007
18.	Training programme on "Culture Building Through Team Work"	NIT Hamirpur (H.P.)	April 21-22, 2007
19.	Short term course on "AUTOCAD"	NIT Hamirpur (H.P.); TEQIP	Nov. 22-23, 2007
20.	Summer School in Tribology	TSI, Hyderabad (India)	June 10-13, 2009
21.	STC on "Application based Global Trends in Renewable Energy Sources"	NIT Hamirpur; MHRD & AICTE	Sept. 20-24, 2010
22.	Programme on "Management Capacity Enhancement for Administrators"	IIM Lucknow; TEQIP-II, NIT Hamirpur (H.P.)	Feb. 11-15, 2013

(Annexure-1)

LIST OF PUBLICATIONS

Edited Books: 06

Book Chapters: 25

Patents Granted/Published: 03

Papers published Peer-reviewed International / National Journals: 100

Communicated: 05

Papers published in International Conference Proceedings: 58

Papers published in National Conference Proceedings: 25

Articles published in Popular magazines/Newspapers: 02

IDs of Prof. Rakesh Sehgal in Various Popular Research Platforms:

S. No.	Research Platform	ID
1.	Scopus	https://www.scopus.com/authid/detail.uri?authorId=57202592183
2.	Research Gate	https://www.researchgate.net/profile/Rakesh_Sehgal/publications
3.	Google Scholar	https://scholar.google.com/citations?hl=en&user=cViOk7MAAAAJ
4.	Orchid	https://orcid.org/0000-0002-1264-6373
5.	Publons	https://publons.com/researcher/3745469/rakesh-sehgal
6.	Vidwan	https://vidwan.inflibnet.ac.in/login

Edited Books:

1. Editor: Rakesh Sehgal, Performance Evaluation of Bearings, Publisher: InTech, Janeza Trdine 9, 51000 Rijeka, Croatia, ISBN 978-953-51-0786-6, Oct., 2012.
2. Editors: **Rakesh Sehgal**, Neeraj Gupta, Mukund Dutt Sharma, Anuradha Tomar, Smart Electrical and Mechanical Systems: An application of Artificial Intelligence and Machine learning, Publisher: Elsevier, 1st Edition: June 1, 2022, ISBN: 9780323907897.
3. Editors: Vijay Kumar, Kashma Sharma, **Rakesh Sehgal**, Susheel Kalia, Conjugated Polymers for Next Generation of Photovoltaics, Energy Storage and Electronics, Vol 1. Publisher: Elsevier, ISBN: 9780128234426 (2022). <https://doi.org/10.1016/C2020-0-00254-9>
4. Editors: Vijay Kumar, Kashma Sharma, **Rakesh Sehgal**, Susheel Kalia, Conjugated Polymers for Next Generation of Photovoltaics, Energy Storage and Electronics, Vol 2. Publisher: Elsevier, , ISBN: 9780128240946 (2022). <https://doi.org/10.1016/C2020-0-01559-8>
5. Editors: Vijay Kumar, Irfan Ayoub, Hendrik C Swart, **Rakesh Sehgal**, Upconversion Nanoparticles (UCNPs) for Functional Applications: Springer Nature Singapore, ISBN: 978-981-99-3913-8 (2023). <https://link.springer.com/book/9789819939121>
6. Editors: M.F. Wani, M. Jebran Khan, **Rakesh Sehgal**, High Temperature Tribology of Ceramics and Ceramic Matrix Composites, *Publisher: Elsevier (Book proposal accepted)*.

Book Chapters (Published): 25

1. Nirmal S. Kalsi, **Rakesh Sehgal**, Vishal S. Sharma; Grey-Based Taguchi Analysis Approach for Optimization of Multi-Objective Problem, Analytical Approaches to Strategic Decision-Making: Interdisciplinary Considerations, Copyright © 2014, IGI Global.
<https://DOI: 10.4018/978-1-4666-5958-2.ch011>
2. Sanjiv Kumar, Rajiv Kumar, **Rakesh Sehgal**, Sanjeev Bhandari; Vibration Analysis of Rotor Bearing Housings Considering Unbalancing in Two Planes, Publisher: Springer; ISBN: 978-81-322-1858-6 (Print) 978-81-322-1859-3 (Online); April 29, 2014, Lecture Notes in Mechanical Engineering Book Series, pp. 83-93.
http://DOI:10.1007/978-81-322-1859-3_8
3. Nath J., Sharma K., Kumar S., Sharma V., Kumar V., **Sehgal R.** (2021) Electrospun Nanofibers for Wastewater Treatment. In: Tiwari S.K., Sharma K., Sharma V., Kumar V. (eds) Electrospun Nanofibers. Springer Series on Polymer and Composite Materials. Springer, Cham.
https://doi.org/10.1007/978-3-030-79979-3_4
4. Singh J., Thakur S., **Sehgal R.**, Dhaliwal A.S., Kumar V. (2021) Surface Engineering of Nanofiber Membranes via Electrospinning-Embedded Nanoparticles for Wastewater Treatment. In: Tiwari S.K., Sharma K., Sharma V., Kumar V. (eds) Electrospun Nanofibers. Springer Series on Polymer and Composite Materials. Springer, Cham.
https://doi.org/10.1007/978-3-030-79979-3_10
5. Mankotia P., Sharma K., Sharma V., **Sehgal R.**, Kumar V. (2021) Polymer and Ceramic-Based Hollow Nanofibers via Electrospinning. In: Tiwari S.K., Sharma K., Sharma V., Kumar V. (eds) Electrospun Nanofibers. Springer Series on Polymer and Composite Materials. Springer, Cham.
https://doi.org/10.1007/978-3-030-79979-3_9
6. Nath J., Sharma K., Kumar S., Kumar V., **Sehgal R.** (2022) Polymer/Carbon Nanocomposites for Biomedical Applications. In: Hasnain M.S., Nayak A.K., Alkahtani S. (eds) Polymeric and Natural Composites. Advances in Material Research and Technology. Springer, Cham.
https://doi.org/10.1007/978-3-030-70266-3_4
7. Choudhary, S., Sharma, K., Sharma, V., Kumar, V., **Sehgal, R.** (2022). Marine Collagen for Delivery of Therapeutics. In: Jana, S., Jana, S. (eds) Marine Biomaterials. Springer, Singapore.
https://doi.org/10.1007/978-981-16-5374-2_4
8. Nisar Hussain, Irfan Ayoub, Umer Mushtaq, Rishabh Sehgal, Seemin Rubab, **Rakesh Sehgal**, Hendrik C. Swart, Vijay Kumar, Introduction to phosphors and luminescence, Editor(s): Vikas Dubey, Neha Dubey, Marta Michalska Domańska, M. Jayasimhadri, Sanjay J. Dhoble, Rare-Earth-activated Phosphors, Elsevier, 2022, Pages 3-41, ISBN 9780323898560.
<https://doi.org/10.1016/B978-0-323-89856-0.00008-0>
9. Irfan Ayoub, Umer Mushtaq, Nisar Hussain, Seemin Rubab, **Rakesh Sehgal**, Hendrik C. Swart, Vijay Kumar, Rare-earth-activated phosphors for LED applications, Editor(s): Vikas Dubey, Neha Dubey, Marta Michalska Domańska, M. Jayasimhadri, Sanjay J. Dhoble, Rare-Earth-activated Phosphors, Elsevier, 2022, Pages 205-240, ISBN 9780323898560.
<https://doi.org/10.1016/B978-0-323-89856-0.00013-4>
10. Jagdeep Singh, A.S. Dhaliwal, Kashma Sharma, **Rakesh Sehgal**, Vijay Kumar, Conductive polymer-based composite photocatalysts for environment and energy applications, Editor(s): Vijay Kumar, Kashma Sharma, Rakesh Sehgal, Susheel Kalia, In Woodhead Publishing Series in Electronic and Optical Materials, Conjugated Polymers for Next-Generation Applications, Woodhead Publishing, Volume 1, 2022, Pages 505-538, ISBN 9780128234426.

<https://doi.org/10.1016/B978-0-12-823442-6.00011-8>

11. Irfan Ayoub, Rishabh Sehgal, Vijay Kumar, **Rakesh Sehgal**, Hendrik C Swart, Nanotechnology enabled next-generation LED lights, Anh Nguyen, T., & Gupta, R.K. (Eds.). (2022). Nanotechnology for Light Pollution Reduction (1st ed.). CRC Press. eBook ISBN: 9781003185109. <https://www.taylorfrancis.com/chapters/edit/10.1201/9781003185109-14/>
12. Kumawat, Y.K., Sehgal, R., Ayoub, I., **Sehgal, R.**, Kumar, V. (2023). Recent Progress in the Development of Metallic Composite for Advanced Technologies. In: Tiwari, S.K., Kumar, V., Thomas, S. (eds) Nanoparticles Reinforced Metal Nanocomposites. Springer, Singapore. ISBN: 978-981-19-9729-7. https://doi.org/10.1007/978-981-19-9729-7_3
13. Kumar, S. Kumar, B., Sehgal, R., Wani, M.F., Kumar, D., Sharma, M.D., Singh, V., **Sehgal, R.**, Kumar V. (2023). Advantages and Disadvantages of Metal Nanoparticles. In: Tiwari, S.K., Kumar, V., Thomas, S. (eds) Nanoparticles Reinforced Metal Nanocomposites. Springer, Singapore. ISBN: 978-981-19-9729-7. https://doi.org/10.1007/978-981-19-9729-7_7
14. Umer Mushtaq, Nisar Hussain, Irfan Ayoub, Seemin Rubab, **Rakesh Sehgal**, Vijay Kumar, Inorganic nanosystems for imaging diagnostics, Editor(s): Md Saquib Hasnain, Amit Kumar Nayak, Tejraj M. Aminabhavi, Inorganic Nanosystems, Academic Press, 2023, Pages 549-588, ISBN 9780323857840. <https://doi.org/10.1016/B978-0-323-85784-0.00002-9>
15. Urba Afnan, Kashma Sharma, **Rakesh Sehgal**, Vijay Kumar, Xanthan gum-based nanocarriers for therapeutic delivery, Editor(s): Md Saquib Hasnain, Amit Kumar Nayak, Tejraj M. Aminabhavi, Polymeric Nanosystems, Academic Press, 2023, Pages 333-365, ISBN 9780323856560. <https://doi.org/10.1016/B978-0-323-85656-0.00008-5>
16. Priyanka Mankotia, Kashma Sharma, Vishal Sharma, **Rakesh Sehgal**, Vijay Kumar, Inorganic bionanocomposites for bone tissue engineering, Editor(s): Md Saquib Hasnain, Amit Kumar Nayak, Tejraj M. Aminabhavi, Inorganic Nanosystems, Academic Press, 2023, Pages 589-619, ISBN 9780323857840. <https://doi.org/10.1016/B978-0-323-85784-0.00013-3>
17. Irfan Ayoub, Rishabh Sehgal, Hendrik C. Swart, **Rakesh Sehgal**, Vishal Sharma, Vijay Kumar, Viable defect engineering with templates into metal oxides, Editor(s): Vijay Kumar, Sudipta Som, Vishal Sharma, Hendrik C. Swart, In Metal Oxides, Metal Oxide Defects, Elsevier, 2023, Pages 355-385, ISBN 9780323855884. <https://doi.org/10.1016/B978-0-323-85588-4.00011-8>
18. Jyotendra Nath, Virender Pratap Singh, Rishabh Sehgal, Shashikant Kumar, Vijay Kumar, **Rakesh Sehgal**, Utilization of magnetic nanoferrite-based photocatalysts for elimination of organic pollutants from wastewater, Editor(s): Susheel Kalia, Rohit Jasrotia, Virender Pratap Singh, In Woodhead Publishing Series in Composites Science and Engineering, Magnetic Nanoferrites and their Composites, Woodhead Publishing, 2023, Pages 317-350, ISBN 9780323961158. <https://doi.org/10.1016/B978-0-323-96115-8.00008-8>
19. Irfan Ayoub, Rishabh Sehgal, Hendrik C. Swart, **Rakesh Sehgal**, Vijay Kumar, Perovskite-based LEDs and lasers, Editor(s): Srikanta Moharana, Tanmaya Badapanda, Santosh Kumar Satpathy, Ram Naresh Mahaling, Rajneesh Kumar, In Metal Oxides, Perovskite Metal Oxides, Elsevier, 2023, Pages 519-548, ISBN 9780323995290. <https://doi.org/10.1016/B978-0-323-99529-0.00015-1>.
20. Ayoub, I., Sehgal, R., Sharma, V., **Sehgal, R.**, Swart, H.C., Kumar, V. (2023). Rare-Earth Doped Inorganic Materials for Light-Emitting Applications. In: Kumar, V., Sharma, V., Swart, H.C. (eds) Advanced

Materials for Solid State Lighting. Progress in Optical Science and Photonics, vol 25. Springer, Singapore.

https://doi.org/10.1007/978-981-99-4145-2_1

21. Ayoub, I., Sehgal, R., Sharma, V., **Sehgal, R.**, Swart, H.C., Kumar, V. (2023). Rare-Earth-Doped Ternary Oxide Materials for Down-Conversion and Upconversion. In: Kumar, V., Sharma, V., Swart, H.C. (eds) Advanced Materials for Solid State Lighting. Progress in Optical Science and Photonics, vol 25. Springer, Singapore.
https://doi.org/10.1007/978-981-99-4145-2_5
22. Mushtaq, U., Sehgal, R., Sharma, V., **Sehgal, R.**, Swart, H.C., Kumar, V. (2023). Organic Material-Based Phosphors. In: Kumar, V., Sharma, V., Swart, H.C. (eds) Advanced Materials for Solid State Lighting. Progress in Optical Science and Photonics, vol 25, Springer, Singapore.
https://doi.org/10.1007/978-981-99-4145-2_11
23. Priyanka Mankotia, Kartikey Verma, Kashma Sharma, Vishal Sharma, Vijay Kumar, **Rakesh Sehgal** (2023) Mass Spectroscopy in Biomedical Nanotechnology, Ajeet Kaushik, Sesha S. Srinivasan, Yogendra Kumar Mishra (Eds.) Analytical Techniques for Biomedical Nanotechnology. Institute of Physics (IOP). Pages 8-24.
<https://iopscience.iop.org/book/edit/978-0-7503-3379-5/chapter/bk978-0-7503-3379-5ch8>
24. Ayoub, I., Tantray, A.M., Sehgal, R., Sharma, V., Sehgal, R., Swart, H.C., Kumar, V., (2023). Optical and electrical switching of thermochromic metal oxide nanostructures. In: Kumar, V., Ayoub, I., Sharma, V., Swart, H.C. (Eds) Optical Properties of Metal Oxide Nanostructures. Progress in Optical Science and Photonics, vol 26. Springer, Singapore.
https://doi.org/10.1007/978-981-99-5640-1_2
25. Ayoub, I., Sehgal, R., Sharma, V., **Sehgal, R.**, Swart, H.C., Kumar, V. (2023). Applications of Upconversion Nanoparticles in Bio-Imaging. In: Kumar, V., Ayoub, I., Swart, H.C., Sehgal, R. (eds) Upconversion Nanoparticles (UCNPs) for Functional Applications. Progress in Optical Science and Photonics, vol 24. Springer, Singapore.
https://doi.org/10.1007/978-981-99-3913-8_15

Book Chapters (Communicated):

26. Jyotendra Nath, Kashma Sharma, Rishabh Sehgal, Shashiknat Kumar, Vishal Sharma, Rakesh Sehgal, Vijay Kumar, Polysaccharide based superabsorbent hydrogels, Shakeel Ahmed, Akbar Ali (Eds), Polysaccharides based Hydrogels, Publisher: Elsevier.
27. Shabnum Saleem, Kashma Sharma, Vishal Sharma, Vaneet Kumar, Rakesh Sehgal, Vijay Kumar*, Polysaccharide-based super moisture absorbent hydrogels in sustainable agricultural applications, Shakeel Ahmed, Akbar Ali (Eds), Polysaccharides based Hydrogels, Publisher: Elsevier.
28. Yogesh Kumar Kumawat, Rishabh Sehgal, Irfan Ayoub, **Rakesh Sehgal**, Vijay Kumar, Recent progress in the developed metallic composite for advanced technologies, Santosh Kr Tiwari, Vijay Kumar, Sabu Thomas (Eds) Nanoparticles Reinforced Metal Nanocomposites - Mechanical Performance and Durability. Publisher: Springer Nature Singapore (**Submitted**).
29. Sanjay Kumar, Bharat Kumar, Rishabh Sehgal, M.F. Wani, Deepak Kumar, Mukund Dutt Sharma, Vivek Singh, **Rakesh Sehgal**, Vijay Kumar, Advantages and Disadvantages of Metal Nanoparticles, Santosh Kr Tiwari, Vijay Kumar, Sabu Thomas (Eds) Nanoparticles Reinforced Metal Nanocomposites - Mechanical Performance and Durability. Publisher: Springer Nature Singapore (**Submitted**).

Patents Granted/Published: 03

S. No.	Title of the Patent/Invention	Name of Inventors	Status (Granted/Published)
1.	Method to Improve the Performance of a Multipoint Clamped Inverter Fed Induction Motor by using a Closed Loop Controller	Dr. Obbu Chandra Sekhar Dr. Rakesh Sehgal Dr. Abdul Hamid Bhat	Published (23/04/2021)
2.	Development of nano Cedrus Deodarasawdust Based Biodegradable, Environment Friendly Water Lubricant for Tribological Applications	Prof. M.F. Wani Prof. Rakesh Sehgal Dr. Shahid Saleem	Published 03/06/2022
3.	Design and Manufacturing of Patient-Specific Titanium Mesh Cranial Prosthesis Using CAD/CAM and Conventional Bending	Dr. Mohd. Mursaleen Bhat Prof. (Dr.) Abrar Ahad Wani Prof. (Dr.) Rakesh Sehgal Dr. Sheikh Ghulam Mohd. Prof. (Dr. Sheikh Nazir Ahmed	Published 01/07/2022 Journal No.-26/2022 Appl. No. 20221032620

Scientific Publications (Peer-reviewed International/National Journals): 100 Nos.

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Strengths:

A **bright academic career** throughout School, UG, PG, Doctorate and Post Doctorate level from reputed Universities/Institutions and **37½ years of rich teaching, research, and administrative experience**. Contributed in establishing NIT Hamirpur (H.P.) as one of the premier NITs while working on various academic and administrative assignments such as Coordinator, Warden, Proctor, Deans, Head (Mechanical), Senate and Chairman/Member of various important committees. With a strong **National/International exposure and collaborations**, successfully established a new Govt. Engineering College at Kangra (H.P.) in 03 years as its founder Director. **A person with positive mindset and strong believer in team work**, re-established NIT Srinagar (J&K) during my five and half year's tenure in terms of good Human Resources, Civil, Laboratory and Research Infrastructure to improve its **positive visibility and Ranking at National/International level**.



(Prof. Rakesh Sehgal)