

## Bio-Data

### 1. Personal Information

Name : **Rakesh Sehgal**  
Date of Birth : **June 07, 1963**  
Present Designation : **Director  
National Institute of  
Technology Srinagar, (J&K)**



Contact Address : **Director  
National Institute of Technology Srinagar,  
Hazratbal, Srinagar (J&K) 190006  
Ph.: 0194-2422032 (O); 2420475 (Fax)  
9418058442; 9419433770 (Mob.)  
E-mail: [rakeshsehgal.nitham@gmail.com](mailto:rakeshsehgal.nitham@gmail.com)  
[rsehgal@nith.ac.in](mailto:rsehgal@nith.ac.in); [director@nitsri.net](mailto:director@nitsri.net)**

### 2. Educational and Professional Qualification

Examination or Degree	Board/ University	Year of Passing	Division	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 <sup>th</sup> 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 Mechanical Equipment)	I.I.T., Delhi	Jan., 1991	9.75 CGPA	First position in Design Stream
<b>Ph.D.</b>	Kurukshetra University	Nov, 2001	<b>Ph.D. Topic:</b> <b>Developing Tribo-concepts Design Methodology for Improved Reliability and Maintenance of Mechanical Systems</b>  <b>Ph.D. Supervisors:</b> Late Prof. O.P. Gandhi (IIT Delhi)	Ph.D.

			Prof. Surjit Angra (NIT, Kurukshetra)	
<b>Post Doctorate</b>	UGC PDF Award	Sept., 2009- Sept., 2011	<b>PDF Topic:</b> <b>Isoviscous and Thermal Studies of Some Non-circular Journal Bearing Profiles</b>  <b>Pursued as self-guided research at Tribo-lab, Mech. Engg. Dept., NIT Hamirpur (H.P) and Final Thesis/ Report submitted to UGC, New Delhi</b>	Post Doctorate Fellowship (PDF) Award

### 3. Professional Experience (Most recent first)

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
Ministry of Human Resources Development, New Delhi	<b>Director</b> <b>NIT Srinagar, Hazratbal, Srinagar (J&amp;K)</b> (09-11-2017 to till date)	Rs. 2,10,000/- + Rs. 11250/- Special allowance	<b>Complete Administration</b>	Still working (On deputation for 05 years)
Dept. of Technical Edu., H.P. Govt.	<b>Director-cum-Principal</b> Rajiv Gandhi Govt. Engg. College, Kangra (01-08-2014 to 31-07-2017) [3 Years]	Rs. 67,000/- + Rs.10,000/- AGP +Rs.3000/-SP	<b>Administration (Establishment of New Engineering College)</b>	Deputation period complete
NIT Hamirpur (H.P.)	Professor, Mech. Engg. (01-07-2004 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 31-06-2004)	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. Professor
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
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#### 4. Academic Research and Publications

<b>a. Ph.D. Supervision: (Awarded-10; On-going-04)</b>				
<b>S.No</b>	<b>Name of Candidate</b>	<b>Year of Completion</b>	<b>Uni./Institute</b>	<b>Title of Thesis</b>
1.	Sh. Suresh Dhiman	<b>Oct., 2008 (Awarded)</b>	Kurukshetra University	Assessment and Optimisation of Cutting Parameters during Machining
2.	Sh. Mohit Dhiman	<b>Aug., 2010 (Awarded)</b>	NIT Hamirpur (H.P.) (Off-campus)	Development, Characterisation and Parametric Optimization of Wear Resistant Piston Alloys
3.	Sh. Amit Chauhan	<b>June, 2011 (Awarded)</b>	NIT Hamirpur H.P.) (Off-campus)	Experimental investigations of the behaviour of few non-circular journal bearings
4.	Ms. Jaspreet Kaur Bhatia	<b>July, 2012 (Awarded)</b>	NIT Jalandhar (Pb.) (Off-campus)	Synthesis and Characterization of Soy Protein Concentrate Graft Copolymers and their Applications as a Particle Reinforcement in Biodegradable Composites
5.	Sh. P.K. Sood	<b>Aug., 2012 (Awarded)</b>	NIT Hamirpur (H.P.) (Part time)	Studies on stir cast aluminium alloys
6.	Sh. Sanjiv Kumar	<b>July, 2013 (Awarded)</b>	NIT Hamirpur (H.P.) (Off-campus)	Vibration control of rotating beams using active constrained layer damping (ACLD) treatment
7.	Sh. Nirmal Singh	<b>Oct., 2014 (Awarded)</b>	NIT Hamirpur (H.P.) (Off-campus)	Some investigations on cryogenically and non-cryogenically treated tools in turning
8.	Sh. Manoj Nayak	<b>Aug., 2016 (Awarded)</b>	NIT Hamirpur (H.P.) (Off-campus)	Investigating Machinability and Tool Wear/Performance of CBN Tool Inserts in Hard Turning of D6 Steel
9.	Sh. Mukund Dutt Sharma	<b>Aug., 2016 (Awarded)</b>	NIT Hamirpur (Full Time+ Part Time)	Tribological Studies and Machining Parameterization of Titanium Alloys
10.	Sh. Sanjiv Katoch	<b>March, 2018 (Awarded)</b>	NIT Hamirpur (Off-campus)	Effect of Cryogenic Treatment on Mechanical and Metallurgical Properties of Tool and Die Steels
11.	Ms. Qurat-Ul-Ain	<b>Registered</b>	NIT Srinagar (Full Time)	Molecular Dynamics Simulation and Experimental Studies of Polymer Nanocomposites

12.	Sh. Chandra Shekhar Singh	<b>Registered</b>	NIT Srinagar (Full Time)	Metal Matrix Composite
13.	Sh. Himanshu Shekhar Gupta	<b>Registered</b>	NIT Srinagar (Full Time)	Nano Lubrication
14.	Sh. Sanjay Jaswal	<b>Registered</b>	NIT Srinagar (Full Time)	MR Fluid

**b. Publications: 160 No. (Annexure-I)**

- (i) Refereed International Journals: Published-52; Accepted-01; Communicated-17
- (ii) Refereed National Journals: Published-12
- (iii) International Conferences: Presented/Published in Proceedings- 53
- (iv) National Conferences/Seminars/Workshops: Presented/Published in Proceedings- 25

**c. Books Published: 01 No.**

Title: **Performance Evaluation of Bearings**

Publisher: InTech, Janeza Trdine 9, 51000 Rijeka, Croatia,  
ISBN 978-953-51-0786-6, Oct., 2012

**d. Book Chapters Published: 02 Nos.**

1. Title: **Grey based Taguchi Analysis Approach for Optimization of Multi-objective Problem**  
Publisher: IGI Global
2. Title: **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); pp. 83-93.

**e. M.Tech. Thesis Supervision: 09 No. (Annexure-II)**

**5. Sponsored Projects: 05 No. (Annexure-III)**

**6. Consultancy Projects: 02 No. (Total Value-0.8Lacs)**

**7. Expert/Invited Lectures Delivered: 36 No. (Annexure-IV)**

**8. Conferences/Short Term Courses Organised: 16 No. (Annexure-V)**

- (i) International Conferences: 01 No.
- (ii) National Conferences/Seminars: 03 No.

(iii) Short Term Training Programmes/FDPs/Workshops: 12 No.

9. Seminars/Symposia/Workshops Attended: 24 No. (Annexure-VI)

10. Short Term Courses Attended: 22 No. (Annexure-VII)

11. Awards/distinctions/honours/membership of National Committees: (Annexure-VIII)

12. Membership of Professional Societies: 07 No. (Annexure-IX)

13. Countries Visited for Professional Activities: 09 No. (Annexure-X)

14. Management and Institutional Development Activities: (Annexure-XI)

#### Annexure I

Refereed Journal Papers : 64 Nos. (*Published*)  
01 Nos. (*Accepted*)  
17 Nos. (*Communicated*)

#### (i) Papers Published in Refereed International Journals (50 Nos.)

S.No.	Author(s)	Title	Complete Reference of Journal	Impact Factor
1.	R. Sehgal, O.P. Gandhi and S. Angra	Reliability evaluation and selection of rolling element bearings	Reliability Engineering and System Safety, Vol. 68 (2000), pp. 39-52	2.693
2.	Rakesh Sehgal, K.N.S. Swamy, K.Athre and S. Biswas	A comparative study of the thermal behaviour of circular and non-circular journal bearings	Lubrication Science, Vol. 12, No. 4, August 2000, pp. 329-344	1.03
3.	R. Sehgal, O.P. Gandhi and S. Angra	Fault location of tribo-mechanical systems – a graph theory and matrix approach.	Reliability Engineering and System Safety, Vol. 70(2000), pp.1-14	2.693
4.	Rakesh Sehgal, O.P. Gandhi and S. Angra	Wear evaluation and ranking of tribomaterials using a Hasse diagram approach.	Trans. of the ASME, Journal of Tribology, Vol. 123, July 2001, pp. 486-493	1.265
5.	Rakesh Sehgal, O.P. Gandhi and S. Angra	Failure cause identification of tribo-mechanical	Tribology International, Vol. 36, 2003, pp. 889-901	2.094

		systems using fault tree -A digraph approach.		
6.	<b>Rakesh Sehgal</b> , Ashutosh Tiwari and Vivek Sood	A study on fitness-for-service assessment for crack like defects and corrosion in nuclear reactor pressure tubes	Reliability Engineering and System Safety, Vol. 89(2), August <b>2005</b> , pp. 227-235	2.693
7.	Amit Chauhan and <b>Rakesh Sehgal</b>	An experimental determination of temperature profile in an offset-halves journal bearing with different oils.	Tribology Online, Vol. 2, No. 3 ( <b>2007</b> ) pp. 83-88.	H Index 7
8.	Vishal S. Sharma, Suresh Dhiman, <b>Rakesh Sehgal</b> and S.K. Sharma	Evaluating various factors for turning of adamite	Proceedings of the Institution of Mechanical Engineers, Part B, Journal of Manufacture, Vol. 221, Number 12, <b>2007</b> pp.1715-1723.	0.954
9.	Suresh Dhiman, S.K. Sharma, <b>Rakesh Sehgal</b> and Vishal Sharma	Influence of approaching angle and cutting parameters on cutting forces, tool tip temperature and surface roughness during turning of adamite	International Journal for Manufacturing Science & Production (IJMSP), Vol.8, Nos.2-4, <b>2007</b> , pp. 85-96.	0.55
10.	Vishal S. Sharma, Suresh Dhiman, <b>Rakesh Sehgal</b> and S.K. Sharma	Assessment and optimization of cutting parameters while turning AISI 52100 steel	International Journal of Precision and manufacturing, Vol. 5, No.9, April, <b>2008</b> , pp. 1-10.	1.205
11.	S. Angra, <b>Rakesh Sehgal</b> and Z. Noori	Cellular manufacturing- A time based analysis to layout problem	International Journal of Production Economics, Vol. 112, <b>2008</b> , pp. 427-438.	3.069
12.	Vishal S. Sharma, Suresh Dhiman, <b>Rakesh Sehgal</b> and D.K. Sharma	Estimation of cutting forces and surface roughness for hard turning using neural networks	Journal of Intelligent Manufacturing, J Intell Manuf ( <b>2008</b> ) 19:473–483.	1.731
13.	Mohit Dhiman, D.K. Dwivedi, <b>R.K. Sehgal</b> and I.K. Bhat	Effect of iron on microstructure of Al-12Si-1Cu-0.1Mg alloy.	Materials and Manufacturing Processes (Taylor and Francis), 23, ( <b>2008</b> ), pp. 805-808.	1.629
14.	Mohit Dhiman, D.K. Dwivedi, <b>R.K. Sehgal</b>	Effect of iron (wt.%) on adhesive wear response of	Transactions of IIM (Indira Gandhi Centre for Atomic Research), 61,6, ( <b>Dec. 2008</b> ), pp. 451-456.	

	and I.K. Bhat	Al-12Si-1Cu-0.1Mg alloy in dry sliding conditions		
15.	Amit Chauhan, <b>Rakesh Sehgal</b> and R.K. Sharma	Thermohydrodynamic analysis of elliptical journal bearing with different grade oils	Tribology International, 43 (2010), pp. 1970-1977.	2.094
16.	<b>Rakesh Sehgal</b>	Experimental measurement of oil film temperatures of elliptical journal bearing profile using different grade oils	Tribology Online, 5, 6 (2010), pp. 291-299.	
17.	Nirmal Singh, <b>Rakesh Sehgal</b> and Vishal Sharma	Cryogenic treatment of tool materials: A review	J of Materials and Manufacturing Processes, Vol.25, 10 (2010), pp.1077-1100.	1.629
18.	P.K. Sood, <b>Rakesh Sehgal</b> and D.K. Dwivedi	Optimization of turning parameters for surface roughness in CNC turning	I-Manager's Journal of Mechanical Engineering, Vol.1, No. 1, Nov. 2010, pp. 26-30.	
19.	Sanjiv Sharma, Rajiv Sharma and <b>Rakesh Sehgal</b>	Enhanced ACLD Treatment using Stand-off -layer:-FEM based design and experimental vibration analysis	Applied Acoustics, Vol. 72 (2011), pp. 856-872.	1.269
20.	Sanjiv Sharma, <b>Rakesh Sehgal</b> and Rajiv Sharma	Theoretical and Experimental Vibration Analysis of Rotating Beams with ACLD Treatment using Standoff Layer	Intl. Journal of Theoretical and Applied Mechanics, Vo.6, Number 2(2011), pp. 127-151.	0.693
21.	Amit Chauhan, <b>Rakesh Sehgal</b> and R.K. Sharma	A study of thermal effects in offset-halves journal bearing profile using different oils	Lubrication Science, Vol. 23 (5), August, 2011, pp. 233-248.	1.03
22.	Amit Chauhan, <b>Rakesh Sehgal</b> and R.K. Sharma	Thermohydrodynamic studies based on different oils in offset-halves journal bearings	Lubrication Science, Vol. 23, Oct. 2011, pp. 375-392.	1.03
23	Amit Chauhan, <b>Rakesh Sehgal</b> and R.K. Sharma	Investigations on the thermal effects in non-circular journal bearings	Tribology International, Vol. 44 (12), year 2011, pp.1765 –1773.	2.094

24.	Sanjiv Sharma, <b>Rakesh Sehgal</b> and Rajiv Sharma	Active vibration control of beams by combining precompressed layer damping and ACLD treatment: Theory and experimental implementation	Journal of Vibration and Acoustics, <b>December 2011</b> , Volume 133, Issue 6, 061013 (17 pages) doi:10.1115/1.4005028	1.315
25.	Sanjiv Sharma, Rajiv Sharma and <b>Rakesh Sehgal</b>	Performance analysis of finite element and energy based analytical methods for modeling of PCLD treated beams	Journal of Vibration and Acoustics, <b>June 2012</b> , Volume 134, Issue 6, 034501 (9 pages) doi:10.1115/1.4006232	1.315
26.	Nirmal Singh, <b>Rakesh Sehgal</b> and Vishal Sharma	Comparative study to analyse the effect of tempering during cryogenic treatment of tungsten carbide tools in turning	Advance Materials Research, Vol. 410, <b>2012</b> , pp. 267-270.	0.23
27.	Mukund Dutt Sharma and <b>Rakesh Sehgal</b>	Dry sliding friction and wear behavior of titanium alloy (Ti-6Al-4V)	Tribology Online, 7, 2( <b>2012</b> ), pp. 87-95.	H Index 7
28.	Arunil Sharma, Mukund Dutt Sharma and <b>Rakesh Sehgal</b>	Experimental study of machining characteristics of Titanium Alloy (Ti-6Al-4V)	The Arabian Journal for Science and Engineering, November <b>2013</b> , Volume 38, Issue 11, pp 3201-3209	0.367
29.	P.K. Sood, <b>Rakesh Sehgal</b> and D.K. Dwivedi	Machinability Study of Stir Cast Hypoeutectic Aluminium-Silicon Alloys During Turning	Journal of Materials Engineering and Performance, Vol. 22, <b>2013</b> , pp. 470–482	0.998
30.	Mukund Dutt Sharma and <b>Rakesh Sehgal</b>	Experimental study of friction and wear characteristics of titanium alloy (Ti-6Al-4V) under lubricated sliding condition	Industrial Lubrication and Tribology, Emerald, Issue 4, <b>2014</b>	0.444
31.	Sanjiv Kumar, <b>Rakesh Sehgal</b> , Rajiv Kumar and Sanjeev Bhandari	Vibration analysis of 4 jaw flexible coupling considering unbalancing in two planes	International Journal of Science and Technology, Vol. 1, No. 11, Nov., <b>2012</b> .	
32.	<b>Rakesh Sehgal</b> , Amit Chauhan	An experimental investigation of oil	Tribology Online, 8, 1 ( <b>2013</b> ), pp. 1-6.	H Index 7



	and Rajesh Kumar Sharma	film temperatures in elliptical profile journal bearing		
33.	Mohit Dhiman, D.K. Dwivedi, <b>Rakesh Sehgal</b> and I.K. Bhat	Effect of iron on wear behavior of as cast and heat treated hyper-eutectic Al-18Si-4Cu-0.5Mg alloy: A Taguchi approach	Proc. of Institution of Mechanical Engineers, Part L, Journal of Materials: Design and Applications, <b>2014</b> , Vol 228(1), pp. 2–16.	0.672
34.	Nirmal S kalsi, <b>Rakesh Sehgal</b> and Vishal S Sharma	Effect of tempering after cryogenic treatment of tungsten carbide–cobalt bounded inserts	Bull. Mater. Sci., Vol. 37, No. 2, April 2014, pp. 327–335. _c Indian Academy of Sciences	1.017
35.	Vishal Jagota and <b>Rakesh Sehgal</b>	Experimental investigation of effect of liquid carburizing on sliding wear of low carbon steel	International Journal of Engineering Research (IJER), Vol. 3, Issue Special 3, June, 2014, ISSN: 2319-6890 (online); 2347-5013 (print)	1.632
36.	Manoj Kumar and Rakesh Sehgal	Effect of tool material properties and cutting conditions on machinability of AISI D6 steel during hard turning	The Arabian Journal for Science and Engineering, DOI 10.1007/s13369-015-1578-0	0.367
37.	<b>Rakesh Sehgal</b> , Manoj Nayak and Rajiv Kumar Sharma	Continuous and interrupted hard turning using CBN-L tools at moderate cutting speeds	International Journal of Emerging Technology and Advanced Engg., ISSN 2250-2459, Vol. 5, Special Issue 4, March 2015.	6.351
38.	Mukund Dutt Sharma, <b>Rakesh Sehgal</b> and Mohit Pant	Machinability of Titanium ASTM B-348 grade-5 alloy during dry turning with CBN tool	i-manager’s Journal on Material Science(JMS), Vol. 3, No. 2, July – Sept., 2015	0.429
39.	Mukund Dutt Sharma, <b>Rakesh Sehgal</b> and Mohit Pant	Tribological behaviour of Ti3Al2.5V alloy sliding against EN-31 steel under dry condition	STLE- Tribology Transactions, DOI:10.1080/10402004.2015.1084658	1.349
40.	Mukund Dutt Sharma and <b>Rakesh Sehgal</b>	Modeling of machining process while turning tool steel with CBN tool	The Arabian Journal for Science and Engineering, DOI 10.1007/s13369-015-1864-x	0.367

41.	Mukund Dutt Sharma, <b>Rakesh Sehgal</b> and Mohit Pant	Modeling and Optimization of friction and wear characteristics of Ti3Al2.5V alloy under dry sliding condition	ASME-Journal of Tribology, <i>J. Tribol</i> , Vol.138, July 2016, 031603, pp. 1-18	1.265
42.	Sanjiv Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Effect of cryogenic treatment on the tribological behaviour of H11 hot die steel dry sliding against D3 steel	Tribology - Materials, Surfaces & Interfaces, DOI: 10.1080/17515831.2016.1263030	SCOPUS
43.	Sanjiv Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Wear behavior of differently cryogenically treated AISI H13 steel against cold work steel	Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, <a href="https://doi.org/10.1177/0954408918781621">doi.org/10.1177/0954408918781621</a>	SCI 1.44
44.	Sanjiv Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Evolution of mechanical properties and microstructure of different cryogenically treated hot die steel AISI-H13	International Journal of Materials Research, Carl-Hanser, Vol.108, Issue 3 (2017), pp. 173-184. DOI:10.3139/146.111467	SCI 0.68
45.	Sanjiv Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Optimization of friction and wear characteristics of varied cryogenically treated hot die steel grade AISI-H13 under dry condition.	Friction, Springer, Vol. 5, Issue 1(2017), pp. 66-86. DOI: 10.1007/s40544-017-0139-9	SCI 1.5
46.	Sanjiv Katoch, Vishal Singh and <b>Rakesh Sehgal</b>	Characterization of microstructure and Mechanical properties of differently cryogenically treated hot die steel AISI-H11	International Journal of Materials Engineering and Innovation (IJMatEI), Inder Science (IJMATEI-), Vol. 7, Issue ¾ (2016), pp. 285-303. DOI: 10.1504/IJMATEI.2016.10005547	
47.	Sanjiv Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Influence of Cryogenic Treatment on toughness (CVN) and Hardness of Hot Die Steel (AISI-H11)	International Journal of Materials Science and Engineering, Serials Publications, Vol.8, Issue1 (2017), pp. 13-16.	
48.	Sanjiv Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Study of the effect of deep cryogenic treatment on the mechanical properties of hot die steel AISI-H13	Journal on Material Science, i-manager's Publication, Vol.4, Issue 2 (2016), pp. 9-18.	0.429

49.	Sanjiv Katoch, Vishal Singh and <b>Rakesh Sehgal</b>	Mechanical Properties and Microstructure Evaluation of Differently Cryogenically Treated AISI-H11 Steel	International Journal of Steel Structures, Springer, ISSN 1598-2351 DOI 10.1007/s13296-019-00216-4; Feb., 2019	0.734
50.	Sanjiv Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Wear behavior of differently cryogenically treated AISI H13 steel against cold work steel	Proc. IMechE Part E, Journal of Process Mechanical Engineering 0(0) 1-14; DOI: 10.1177/0954408918781621; June, 2018	1.126
51.	Sanjiv Kumar, <b>Rakesh Sehgal</b> , and Sanpreet Singh	Vibration signature analysis of whirling shaft of varying diameters operated at varying speeds	IOP Conf. Series: Journal of Physics: Conf. Series 1240 (2019) 012155; DOI: 10.1088/1742-6596/1240/1/01215 5; August, 2019; pp. 1-6	
52.	Sanjiv Katoch, <b>Rakesh Sehgal</b> , Vishal Singh, Munish Kumar Gupta, Mozammel Mia and Catalin Iulian Pruncu	Improvement of tribological behavior of H-13 steel by optimizing the cryogenic-treatment process using evolutionary algorithms	Tribology International, 140 (2019) 105895; August, 2019; pp. 1-13	3.246

**(ii) Papers Published in Refereed National Journals (12 Nos.)**

S.No	Author(s)	Title	Complete Reference of Journal
1.	<b>R. Sehgal</b> , O.P. Gandhi and S. Angra	Wear evaluation of tribomaterials based on digraph and matrix approach.	Journal of Institution of Engineers (India), Vol. 80, <b>August1999</b> , pp. 53-58.
2.	<b>R. Sehgal</b> , O.P. Gandhi and S. Angra	Failure mode analysis of sliding bearings.	Journal of Institution of Engineers (India), Vol. 81, <b>October2000</b> , pp. 123-129.
3.	<b>R. Sehgal</b> , S. Angra and V. Sharma	Failure mode analysis of riveted joints	Journal of Institution of Engineers (India), Vol. 86, <b>April2005</b> , pp. 1-7.
4.	<b>Rakesh Sehgal</b> , Ashok Kumar and Neeraj Kumar	Design and development of automatic ventilator opening and closing mechanism.	Journal of Institution of Engineers (India), Vol. 87, <b>June2006</b> , pp. 47-50.
5.	<b>Rakesh Sehgal</b> , Surjit Angra and Vinod Sharma	Failure cause analysis of welded joints	Indian Journal of Engineering & Materials Sciences, Vol. 14, <b>February2007</b> , pp. 24-30.
6.	Robin Kr. Bagchi, <b>Rakesh Sehgal</b> and Suresh Dhiman	Development of micro alloyed structural steels in secondary steel sector using induction	Indian Journal of Engineering & Materials Sciences, Vol. 14, <b>June2007</b> , pp. 193-201.

		melting furnace and controlled rolling route.	
7.	Sureash Dhiman, <b>Rakesh Sehgal</b> , S.K. Sharma and Vishal Sharma	Machining behavior of AISI 1018 steel during turning.	Journal of Scientific & Industrial Research, Vol. 67, <b>May 2008</b> , pp. 355-360.
8.	<b>Rakesh Sehgal</b> and Ashim Sharma	A graphical approach for kinematic design and development of an automatic stamping machine using four bar chain	Indian Journal of Engineering & Materials Sciences, Vol.15, <b>June 2008</b> , pp. 229-235.
9.	Amit Chauhan and <b>Rakesh Sehgal</b>	An experimental investigation of the thermal behaviour of offset halves journal bearing profile with different oils.	Indian Journal of Tribology, Vol . 3, No. 2, <b>July-Dec., 2008</b> , pp. 27-41.
10.	Manoj Nayak and <b>Rakesh Sehgal</b>	A proposed method for error prediction and compensation in hard turning	M R International Journal of Engineering & Technology, Vol.3, No.1, <b>June 2011</b> , pp. 34-40.
11.	Manoj Nayak, <b>Rakesh Sehgal</b> and Rajiv Sharma	Mechanical characterization and machinability behavior of annealed AISI D6 cold working steel	Indian Journal of Materials Science (Hindawi), Vol. 2015, Article ID 196178, August, 2015; 12 pages
12.	Manoj Nayak and <b>Rakesh Sehgal</b>	Experiment Modeling of Response Parameters and CBN Tool Wear in Continuous and Interrupted Hard Turning of AISI D6 Steel	Indian Journal of Science and Technology, Vol 12(19), DOI: 10.17485/ijst/2019/v12i19/143902 , May 2019

**(iii) Papers Accepted for Publication in Refereed Journals (01 No.)**

S.No	Author(s)	Title	Complete Reference of Journal
1.	Jaspreet Kaur Bhatia, Balbir Singh Kaith, Rajeev Jindal, <b>Rakesh Sehgal</b>	Pressure induced morphological, chemical and thermal modifications of soy protein concentrate through graft copolymerization	E-Polymers (Accepted)

**(iv) Papers Communicated to Refereed Journals (17 Nos.)**

S.No	Author(s)	Title	Complete Reference of Journal
1.	Sanjiv Sharma, <b>Rakesh Sehgal</b> and Rajiv Sharma	Enhanced Hybrid Constrained Layer Damping Treatment of Simply Supported beams using Stand - off - Layer.	Journal of Smart Materials and Structures

2.	Sanjiv Sharma, <b>Rakesh Sehgal</b> and Rajiv Sharma	Vibration analysis of rotating beams with ACLD Treatment using Stand-off-Layer	Journal of Sound and Vibrations
3.	Sanjiv Sharma, <b>Rakesh Sehgal</b> and Rajiv Sharma	Active vibration control of beams by combining pre-compressed layer damping and ACLD treatment. Part II: - Robust controllers design, experimental implementation and comparison	Journal of Vibration and Acoustics
4.	Sanjiv Sharma, <b>Rakesh Sehgal</b> and Rajiv Sharma	Enhanced ACLD Treatment using Stand - off – Layer. Part I: - FEM based design and experimental vibration analysis	Applied Acoustics
5.	Sanjiv Sharma, <b>Rakesh Sehgal</b> and Rajiv Sharma	Enhanced ACLD Treatment using Stand - off – Layer. Part II: - Robust controllers design, experimental implementation and comparison	Applied Acoustics
6.	Sanjiv Sharma, <b>Rakesh Sehgal</b> and Rajiv Sharma	ACLD Treatment Combined with Pre-compressed layer damping and shunt damping. (For rotating beams)	Journal of Mechanical Engineering
7.	<b>Rakesh Sehgal</b> , P.K. Sood and D.K. Dwivedi	Effect of Beryllium and Cadmium on the machinability of hypoeutectic Al-Si alloys processed by conventional and stir casting technique	Proc. IMechE Part B: Journal of Engineering Manufacture
8.	P.K. Sood, <b>Rakesh Sehgal</b> and D.K. Dwivedi	The effect of Beryllium (Be) and Cadmium (Cd) on stir cast hypoeutectic Aluminum alloys	Materials and Manufacturing Processes, Taylor & Francis, LMMP-2011-0099
9.	Nirmal Singh, <b>Rakesh Sehgal</b> and Vishal Sharma	Effect of tempering during cryogenic treatment of tungsten carbide-cobalt bounded inserts	Materials Science & Engineering A , MSEA-D-11-01861
10.	Nirmal Singh, <b>Rakesh Sehgal</b> and Vishal Sharma	Influence of tempering during cryogenic treatment on tungsten carbide-cobalt inserts in turning	Journal of Advanced Manufacturing Technology, #IJAMT7899
11.	Nirmal Singh, <b>Rakesh Sehgal</b> and Vishal Sharma	Taguchi based grey relation analysis for optimization of multi-objective turning process using tungsten carbide-cobalt inserts	International Journal of Production Research, Manuscript No. TPRS-2011-IJPR-0969; Sept., 2011
12.	Jaspreet Kaur Bhatia, Balbir Singh Kaith, Rajeev Jindal and <b>R Sehgal</b>	Morphological, Chemical and Thermal Modifications of Soy Protein Concentrate through Graft copolymerization	E-Polymers (Under Review)

13.	Jaspreet Kaur Bhatia, Balbir Singh Kaith, Rajeev Jindal and <b>R Sehgal</b>	Physio-chemical and Thermal Investigations of Soy Protein Concentrate and Different Binary Mixtures Based Graft Copolymers	Journal of Applied Polymer Science (Under Review)
14.	Balbir Singh Kaith, Rajeev Jindal, <b>Rakesh Sehgal</b> and Jaspreet Kaur Bhatia	Microwave Induced Graft Copolymerization of Soy Protein Concentrate with Binary Monomer Mixture – A Greener Tool to Modify Physio-Chemical Properties	Journal of Macromolecular Science Part A: Pure and Applied Chemistry (Under Review)
15.	Balbir Singh Kaith, Rajeev Jindal, <b>Rakesh Sehgal</b> and Jaspreet Kaur Bhatia	Graft Co-polymerization of Soy Protein Concentration with Binary Monomer Mixtures under Pressure: A Tool to Enhance Moisture and Chemical Resistance	Bulletin of Material Science (Under Review)
16.	Jaspreet Kaur Bhatia, Balbir Singh Kaith, Rajeev Jindal and <b>Rakesh Sehgal</b>	Comparative studies of graft copolymers of soy protein concentration under different reaction conditions	Express polymer letters
17.	Jaspreet Kaur Bhatia, Balbir Singh Kaith, Rajeev Jindal and <b>Rakesh Sehgal</b>	Modification of physio-chemical and thermal properties of soy protein concentrate under different reaction conditions -A Comparative Study	Journal of Applied Polymer Science

**Refereed Conference Research Papers : Total 78 Nos.**

**i) Papers published in International Conference Proceedings (53 Nos.)**

S.No	Author(s)	Title	Name and Place of Conference
1.	<b>Rakesh Sehgal</b> , K.N.S Swamy, K. Athre and S. Biswas	A comparative study of the thermal behaviour of circular and non-circular journal bearings.	Proc. of International Conference on Tribology NORDTRIB'98, Vol. II, pp. 317-324, June7-10, <b>1998</b> , Ebeltoft, Denmark.
2.	<b>Rakesh Sehgal</b> , O.P. Gandhi and S. Angra	Improved product reliability of mechanical components through structure.	Presented as a country paper in the Workshop on Product Development and Design for Supporting Industry, SSC-W4-99, 2-13 August, 1999, Bangkok, Thailand.

3.	<b>Rakesh Sehgal,</b> O.P. Gandhi and S. Angra	Selection of rolling element bearings – A simple approach.	Proc. of 9 <sup>th</sup> Nordic Symposium on Tribology – ORDTRIB'2000 Porvoo, Finland , 11-14 June, <b>2000</b> , pp. 977-984.
4.	<b>Rakesh Sehgal,</b> O.P. Gandhi and S. Angra	Wear evaluation and ranking of tribomaterials using a Hasse diagram approach.	Proc. of STLE/ASME Tribology Conference, Seattle, WA, October 1-4, <b>2000</b> , Paper No. 2000-TRIB-23, pp. 1-8.
5.	<b>Rakesh Sehgal,</b> O.P. Gandhi and S. Angra	Thermal analysis of circular journal bearings – An experimental and computational approach.	Abstract published in the Proc. of International Tribology Conference, ITC 2000 held at Nagasaki, Japan from Oct 29-Nov 2, <b>2000</b> .
6.	<b>Rakesh Sehgal,</b> O.P. Gandhi and S. Angra	Failure mode analysis of rolling element bearings.	Proc. of 2001 ASME International Mechanical Engineering Congress and Exposition, November 11-16, <b>2001</b> , New York, pp. 1-7.
7.	<b>Rakesh Sehgal,</b> O.P. Gandhi and S. Angra	Investigation of the thermal behaviour of circular journal bearings – an experimental and analytical approach.	Proc. of 46 <sup>th</sup> Congress of ISTAM-An International Event, 19-22 Dec, <b>2001</b> , R.E.C., Hamirpur (H.P.), pp. 124-131.
8.	<b>Rakesh Sehgal,</b> Kumar Pranshu and O.P. Gandhi	Design of hydrostatic journal bearings – A simple approach.	Proc. of 6th International Tribology Conference Austrib'02, 2-5 Dec <b>2002</b> , Perth, Western Australia, Vol. II, pp. 479-484.
9.	Ashim Sharma, Satyajit Sarangi and <b>Rakesh Sehgal</b>	Development of a quadruped robot.	Proc. of Intl. Conference on Controls, Automation & Communications Systems (ICCACS-2004), Dec. 22-24, <b>2004</b> , KIIT, Bhubaneshwar, pp. 59-70.
10.	<b>Rakesh Sehgal,</b> Surjit Angra and Kumar Pranshu	Design and fabrication of a variable speed derive.	Proc. of 49 <sup>th</sup> Congress of the ISTAM- An International Event, Dec. 27-30, <b>2004</b> , N.I.T., Rourkela (India), pp. 214-223.
11.	<b>Rakesh Sehgal,</b> Ashutosh Tiwari and Vivek Sood	Design, Analysis and Fabrication of a Six-Legged Walking machine.	Proceedings of World Tribology Conference III (WTC2005) held at Washington D.C. USA from Sept. 12-16, <b>2005</b> , Paper No. <b>WTC2005-64111</b>
12.	Suresh Dhiman, <b>Rakesh Sehgal</b> and S.K. Sharma	Studies of Machining Parameters of Al Alloy A-390 During Turning.	Proceedings of World Tribology Conference III (WTC2005) held at Washington D.C. USA from Sept. 12-16, <b>2005</b> , Paper No. <b>WTC2005-64128</b>

13.	Suresh Dhiman, S.K. Sharma, <b>Rakesh Sehgal</b> and V.S. Sharma	A fuzzy model for Machinability study of high carbon steel.	Proceedings of Asian Conference on Intelligent Systems and Networks (AISN-2006), Haryana Institute of Engg. & Technology, Jagadhri (Haryana), 24-25 <sup>th</sup> Feb., <b>2006</b> .
14.	<b>Rakesh Sehgal</b> , Suresh Dhiman and Kumar Pranshu	Variable speed drive-synthesis, fabrication and analysis.	Proceedings of the Global Conference on Production and Industrial Engg. CPIE-2007, NIT Jalandhar, 22-24 <sup>th</sup> March, <b>2007</b>
15.	Amit Chauhan, <b>Rakesh Sehgal</b> and Manu Dogra	Influence of sliding velocity and Cu addition on friction and wear behaviour of Al-Si base cast alloy.	Proceedings of the Global Conference on Production and Industrial Engg. CPIE-2007, NIT Jalandhar, 22-24 <sup>th</sup> March, <b>2007</b> .
16.	D.K. Dwivedi, Mohit Dhiman, <b>Rakesh Sehgal</b> and I.K. Bhat	Effect of Mn as Fe corrector on microstructure and adhesive wear of eutectic Al-Si piston alloy.	Proceedings of TMS (The Minerals, Metals & Materials Society), 8-13 March, <b>2008</b> , New Orleans, USA.,pp. 177-186.
17.	<b>Rakesh Sehgal</b> , P.K. Sood, Rajat Mahajan, Sunil Kumar, Taresh Kumar and S. Neiseituo Sharma	Development and study of dry sliding wear characteristics of hypereutectic Al-Si alloys	Proceedings of 2 <sup>nd</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2010, 03-05 Dec., <b>2010</b> , NIT Jalandhar (Pb.) India
18.	Mukund Dutt Sharma and <b>Rakesh Sehgal</b>	Experimental study of erosive wear characteristics of titanium alloy (Ti-6Al-4V)	Proceedings of 2 <sup>nd</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2010, 03-05 Dec., <b>2010</b> , NIT Jalandhar (Pb.) India
19.	Suresh Dhiman, Vishal S. Sharma, <b>Rakesh Sehgal</b> and Manu Dogra	Machining variable estimation and cutting parameters optimization for turning of AISI 1018 steel	Proceedings of 2 <sup>nd</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2010, 03-05 Dec., <b>2010</b> , NIT Jalandhar (Pb.) India
20.	Mohit Dhiman, D.K. Dwivedi, <b>Rakesh Sehgal</b> and I.K. Bhat	Fe-rich intermetallics, microstructure and wear behavior of piston alloy in as cast and T4 treated condition	Proceedings of 2 <sup>nd</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2010, 03-05 Dec., <b>2010</b> , NIT Jalandhar (Pb.) India
21.	Nirmal S Kalsi, <b>Rakesh Sehgal</b> , Vishal Sharma and S S Gill	Performance of friction welding process with varying carbon in specimens	Proceedings of 2 <sup>nd</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2010, 03-05 Dec., <b>2010</b> , NIT Jalandhar (Pb.) India
22.	Arunil Sharma, Mukund Dutt Sharma and <b>Rakesh Sehgal</b>	Experimental study of machining characteristics of Titanium Alloy (Ti-6Al-4V)	Abstract published in the proceedings of 55 <sup>th</sup> Congress of Indian Society of Theoretical and Applied Mechanics (ISTAM)-



			An International Meet, Dec. 18-21, <b>2010</b> , NIT Hamirpur (H.P.). <b>(ET-04)</b>
23.	<b>Rakesh Sehgal</b> , Amit Chauhan and Rajesh Kumar Sharma	An experimental investigation of oil film temperatures in elliptical profile journal bearings	Presented and abstract published in the Proceedings of International Tribology Conference, (ITC), 2011, Oct. 30-Nov. 03, 2011, Hiroshima, Japan, <b>Paper No. F 2-10</b>
24.	Nirmal S Kalsi, <b>Rakesh Sehgal</b> and Vishal S Sharma	Comparative study to analyze the effect of tempering during cryogenic treatment of tungsten carbide tools in turning	Published in the Proceedings of Twentieth International Symposium on Processing and Fabrication of Advanced Materials (PFAM XX), The Hong Kong Polytechnic University, Hong Kong from 15-18 December, <b>2011</b>
25.	<b>Rakesh Sehgal</b> , Mukund Dutt Sharma and Arunil Sharma	Effect of approaching angle on main cutting forces while turning Ti-6Al-4V alloy	Presented and published in the proceedings of international conference on Mechanical, Electronics and Mechatronics Engineering (ICMEME'2012) March 17-18, <b>2012</b> , Bangkok, Thailand, pp. 35-39.
26.	Mukund Dutt Sharma, <b>Rakesh Sehgal</b> and Surjit Angra	Effect of heat treatment on the tribological properties of Titanium alloy (Ti-6Al-4V)	Published in the proceedings of 8 <sup>th</sup> International Conference on Industrial Tribology (ICIT-2012), 7-9 Dec. <b>2012</b> , Pune (India), <b>Paper No. TSI 812511</b>
27.	<b>Rakesh Sehgal</b> , Mukund Dutt Sharma and Surjit Angra	Friction and wear behaviour of AISI A2 tool steel under dry sliding condition	Published in the proceedings of 8 <sup>th</sup> International Conference on Industrial Tribology (ICIT-2012), 7-9 Dec. <b>2012</b> , Pune (India), <b>Paper No. TSI 812512</b>
28.	Mukund Dutt Sharma and <b>Rakesh Sehgal</b>	Experimental study to analyze the dry sliding friction and wear behaviour of titanium alloy (Ti-3Al-2.5V)	Presented and published in the Proceedings of 3 <sup>rd</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2013, March 29-31, <b>2013</b> , NIT Jalandhar (Pb.) India. <b>ID No 0936, pp. 920-925.</b>
29.	<b>Rakesh Sehgal</b> and Mukund Dutt Sharma	Effect of Cutting Speed on Cutting Force and Surface Roughness While Turning AISI A2 Tool Steel	Presented and published in the Proceedings of 3 <sup>rd</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2013, March 29-31, <b>2013</b> , NIT Jalandhar (Pb.) India. <b>ID No 0937, pp. 926-931.</b>

30.	Rohit Maan, Rahul Sharma, Amit Upadhyay, Kuldeep Singh, Rajnish Prasad, <b>Rakesh Sehgal</b> and Mukund Dutt Sharma	Study of the effect of heat treatment on the tribological characteristics of H-11 steel under dry sliding conditions	Presented and published in the Proceedings of 3 <sup>rd</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2013, March 29-31, <b>2013</b> , NIT Jalandhar (Pb.) India. <b>ID No 1221, pp. 1195-98.</b>
31.	Sanjeev Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Comparative Study of the Sliding Wear Behavior of Cryogenically Treated and Conventionally Treated Hot Die Steel Grade AISI-H11	Presented and published in the Proceedings of 3 <sup>rd</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2013, March 29-31, <b>2013</b> , NIT Jalandhar (Pb.) India. <b>ID No 0939, pp. 936-940.</b>
32.	Manoj Nayak and <b>Rakesh Sehgal</b>	Effect of Machining Parameters on Temperature while Machining of Annealed AISI D6 Tool Steel using Statistical Analysis	Presented and published in the Proceedings of 3 <sup>rd</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2013, March 29-31, <b>2013</b> , NIT Jalandhar (Pb.) India. <b>ID No 0938, pp. 932-935.</b>
33.	Nirmal S Kalsi, <b>Rakesh Sehgal</b> and Vishal S Sharma	Application of statistical method to evaluate and optimization of the performance of cryogenically treated tungsten carbide cutting tool inserts in turning	Presented and published in the Proceedings of 3 <sup>rd</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2013, March 29-31, <b>2013</b> , NIT Jalandhar (Pb.) India. <b>ID No 0941, pp. 954-961.</b>
34.	Mohit Dhiman, <b>Rakesh Sehgal</b> , D.K. Dwivedi and Amit Chauhan	Effect of Mn on Fe-rich Intermetallics and Adhesive Wear response of Al-12Si-1Cu-0.1Mg alloy	Presented and published in the Proceedings of 3 <sup>rd</sup> Intl. Conf. on Production and Industrial Engineering CPIE- <b>2013</b> , March 29-31, <b>2013</b> , NIT Jalandhar (Pb.) India. <b>ID No 0817, pp. 691-697.</b>
35.	<b>Rakesh Sehgal</b> and Mukund Dutt Sharma	Influence of machining parameters on main cutting force and surface roughness during turning of AISI A2 steel alloy	Presented and published in the proceedings of Clute Institute International Academic Conference, June 9-11, <b>2013</b> , Paris, France, <b>ID No. ENG-294</b>
36.	Sanjeev Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Effect of cryogenic treatment on hardness, microstructure and wear behavior of hot die steel grade AISI-H13	Presented and published in the Proceedings of Intl. Conf. on Advances in Tribology and Engineering Systems ICATES-2013, Gujarat, DOI: 10.1007/978-81-322-1656-8_13, <b>Oct. 15-18, 2013</b> , Chapter 13, pp. 159-166.
37.	Nirmal S Kalsi,		Presented and published in the proceedings of 2 <sup>nd</sup>

	<b>Rakesh Sehgal</b> and Vishal S Sharma	Effect of cooling media on cryogenically treated tungsten carbide cutting tool inserts of different coatings in turning	International Conference on Business, Engineering and Applied Sciences (ICBEAS –2013) to be held in Monte Carlo Inn, Mississauga (Toronto) , Canada during Nov. 23 -24, <b>2013</b> .
38.	Tanmay Agrawal, Kushagra Upadhyay, Nitin Sharma and <b>Rakesh Sehgal</b>	Effect of change of the orientation of dyad links on kinematics of Stephenson-III six-bar linkage	Presented and published in the proceedings of International Conference on Machines & Mechanisms (iNaCoMM 2013) to be held at IIT Roorkee during Dec. 18-20, <b>2013</b> .
39.	<b>Rakesh Sehgal</b>	Experimental Thermal Analysis of Bronze Elliptical and Offset-halves Journal Bearing Profiles	Presented and published in the proceedings of International Conference on Advances in Tribology and Engineering Systems, Lecture Notes in Mechanical Engineering, DOI: 10.1007/978-81-322-1656-8_1, Springer India <b>2014</b> , pp. 3-17.
40.	Sanjeev Katoch, <b>Rakesh Sehgal</b> , and Vishal Singh	Effect of cryogenic treatment on micro hardness, wear behavior and Microstructure of Hot Die Steel AISI-H11	Presented and published in the Proceedings of 5 <sup>th</sup> Asiatrib at Agra ID No TS1914622, February 17-20, 2014
41.	Sanjeev Katoch, <b>Rakesh Sehgal</b> , and Vishal Singh	Experimental study of hardness and dry sliding wear of cryogenic treated hot die steel AISI-H11	Presented and published in the Proceedings of Intl. Conf. on Advances in Tribology-ICAT14, NIT Calicut, Kerala, Technology letters, CP0001, ID No 0221, February 21-24, 2014, pp. 225-228.
42.	<b>Rakesh Sehgal</b> and Mukund Dutt Sharma	Experimental study to analyse the machining characteristics of AISI A2 tool steel alloy during turning	Presented and published in the proceedings of Clute Institute International Academic Conference, June 8-12, <b>2014</b> , Munich, Germany, <b>ID No. MU14-343</b>
43.	<b>Rakesh Sehgal</b> , R.K. Sharma and Manoj Nayak	Continuous and interrupted hard turning using CBN-L tools at moderate cutting speeds	Presented and published in the proceedings of International Conference on Science, Management, Engineering & Technology (ICSMET 2015), March 18-19, <b>2015</b> , Dubai, UAE
44.	Sanjeev Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Influence of deep cryogenic treatment on the mechanical	Presented and published in the Proceedings of Intl. Conf. on advances in sciences

		properties of AISI-H11 hot die steel	engineering and technology ICASET-2016, GKV-Haridwar. Book ID: ISBN:987-93-5156-328-0, January 29-30, <b>2016</b>
45.	Sanjeev Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Evaluation of wear resistance of cryogenically treated hot die steel AISI-H11	Presented and published in the Proceedings of IVth International conference on production and industrial engineering (CPIE-2016), NIT, Jalandhar, Punjab. ID No 0342, December 19-21, <b>2016</b>
46.	Sanjeev Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Tensile Toughness Evaluation of Differently Cryogenically Treated AISI-H11 Steel	International Conference on Emerging Trends in Engineering Innovations & Technology Management (ICET: EITM-2017), NIT, Hamirpur, (H.P). ID No ME 424, December 16-18, <b>2017</b>
47.	<b>Rakesh Sehgal</b>	Thermal Analysis of Elliptical and Offset-halves Journal Bearing Profiles: An Experimental Approach	First Tunisia-India workshop on Tribology for Sustainable Development (TSD 2018), Dec.19-20, 2018, Hammamet Tunisia
48.	Sanjiv Kumar, <b>Rakesh Sehgal</b> and Sanjeev Bhandari	Vibrations signature analysis of whirling shaft with varying diameters operated at varying speeds	Presented and published in the Proc. of 2 <sup>nd</sup> International Conference on New Frontiers in Engg. Science & Technology (NFEST 2019), Feb. 18-22, 2019, NIT Kurukshetra; <b>Paper ID: 178</b>
49.	G Khajuria, M Wani, S Mushtaq and <b>Rakesh Sehgal</b>	Optimization of the effect of indentation load and dwell time on micro hardness values using fuzzy logic predictive model	Presented and published in the Proc. of 2 <sup>nd</sup> International Conference on New Frontiers in Engg. Science & Technology (NFEST 2019), Feb. 18-22, 2019, NIT Kurukshetra; <b>Paper ID: 177</b>
50.	Sanjay Kumar, M F Wani, <b>Rakesh Sehgal</b> and S. Mushtaq	Friction and Wear Properties of Si <sub>3</sub> N <sub>4</sub> /TiC Ceramic Composite under Nano Lubrication	Presented and published in the Proc. of 2 <sup>nd</sup> International Conference on New Frontiers in Engg. Science & Technology (NFEST 2019), Feb. 18-22, 2019, NIT Kurukshetra; <b>Paper ID: 294</b>
51.	Qurat Ul Ain, M F. Wani and <b>Rakesh Sehgal</b>	An Overview of Tribological Characteristics of Self-Lubricating Metal Matrix Composites (SLMMCS) Using Copper Based	Presented and published in the Proceedings of 6 <sup>th</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2019, June 08-10, <b>2019</b> , NIT Jalandhar (Pb.) India. <b>ID No. CPIE-2019_254.</b>

		Matrix Reinforced With Different Solid Lubricants	
52.	Summera Banday, M. F. Wani and <b>Rakesh Sehgal</b>	Adhesion Strength of Self-Lubricating Multilayer TI/MOS2/SI/MOS2 Nanocoating	Presented and published in the Proceedings of 6 <sup>th</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2019, June 08-10, <b>2019</b> , NIT Jalandhar (Pb.) India. <b>ID No. CPIE-2019_255.</b>
53.	Mukund Dutt Sharma and <b>Rakesh Sehgal</b>	Machinability During Orthogonal Turning of Titanium Alloy (Ti-6Al-4V)	Presented and published in the Proceedings of 6 <sup>th</sup> Intl. Conf. on Production and Industrial Engineering CPIE-2019, June 08-10, <b>2019</b> , NIT Jalandhar (Pb.) India. <b>ID No. CPIE-2019_273.</b>

**ii) Papers published in National Conference Proceedings (25 Nos.)**

S.No	Author(s)	Title	Name and Place of Conference
1.	P. K. Sood and <b>R. Sehgal</b>	Guidelines for selecting the new business.	Proc. of Entrepreneurship Awareness Camp, Nov. 22-24, <b>1991</b> , R.E.C. Hamirpur (H.P.), pp. 39-44.
2.	B.J. Rao and <b>Rakesh Sehgal</b>	Technical education in societal transformation.	Proc. of XXII Annual Convention of ISTE, Dec. 14-16, <b>1991</b> , Madras, pp. 215-218.
3.	B.J. Rao and <b>Rakesh Sehgal</b>	Present status of technical education and role of ISTE in its future course.	Proc. of XXIII Annual Convention of ISTE, Dec. 26-28 <b>1992</b> , Indore, pp. 153-156.
4.	<b>Rakesh Sehgal</b> and B.J. Rao	Continuing engineering education in India: An appraisal.	Proc. of XXIV Annual Convention of ISTE, Dec. 26-28, <b>1993</b> , KREC, Srinivanagar, pp.7-8
5.	B.J. Rao and <b>Rakesh Sehgal</b>	Continuing education programme: a key to industrial development.	Proc. of XXIV Annual Convention of ISTE, Dec. 26-28, <b>1993</b> , KREC, Srinivasanagar, pp.82.
6.	V. Ramesh Kumar and <b>Rakesh Sehgal</b>	FLD – A formability test tool.	Proc. of ISTE Summer School on Metal Forming – Theory and Practice, June 6-18, <b>1994</b> , PEC, Chandigarh.
7.	<b>Rakesh Sehgal</b> and Anoop Kumar	Power generation through photovoltaic system.	Proc. of National Seminar on Power Scenario in India, Oct. 14-15, <b>1995</b> , R.E.C., Hamirpur (H.P.), pp. E 24 – E 32

8.	<b>Anoop Kumar</b> and Rakesh Sehgal	Wind power: Present and future scope in India.	Proc. of National Seminar on Power Scenario in India, Oct. 14-15, <b>1995</b> , R.E.C., Hamirpur (H.P.), pp. E 51- E 56
9.	<b>Rakesh Sehgal</b> , K Athre and S. Biswas	Isoviscous analysis of circular and non-circular journal bearings.	Proc. of National Conference on Recent Advances in Mechanical Engineering, March 7-8, <b>1997</b> , R.E.C., Kurukshetra (Haryana), pp.27-35.
10.	<b>Rakesh Sehgal</b> , K.N.S Swamy, K. Athre and S. Biswas	Thermohydrodynamic analysis of off-set halves journal bearings.	Proc. of National Symposium on Recent Trends in Theoretical and Applied Mechanics, Nov. 15, <b>1997</b> , R.E.C., Kurukshetra (Haryana), pp. 228-236.
11.	<b>Rakesh Sehgal</b> , O.P. Gandhi and S.Angra	Tribology applied to reliability, availability and maintainability.	Proc. of National Seminar on Maintenance and Condition Monitoring, Feb. 14, <b>1998</b> , Govt. Engineering College, Thrissur (Kerala), pp. 93 – 100.
12.	<b>Rakesh Sehgal</b> , O.P. Gandhi and S.Angra	Failure of sliding bearings – A case study.	Proc. of National Seminar on Maintenance and Condition Monitoring, Feb. 14, <b>1998</b> , Govt. Engineering College, Thrissur (Kerala), pp. 182 – 187.
13.	<b>Rajesh Sharma</b> and Rakesh Sehgal	Basic vibrations analysis in machines.	Abstract published in the Proc. of All India Seminar on Condition Monitoring and Diagnostics of Mechanical Systems, March 6-7, <b>1998</b> , IEI, Lucknow.
14.	<b>Rakesh Sehgal</b> , A. S. Prakash and R. Dhatwalia	Computer aided design of multi-speed gear box.	Proc. of All India Seminar on Recent Trends in Manufacturing organized by HMT Ltd., IE (India) and ISTAM at HMT Pinjore on April 24, <b>1999</b> , pp.75-80.
15.	Suresh Dhiman, <b>Rakesh Sehgal</b> and S.K. Sharma	Assessment of cutting parameters of alloy A-390 for turning operation.	Proceedings of All India Seminar on Emerging Trends in Mechanical Engineering, NIT Kurukshetra, March 29-30, <b>2005</b> , pp. 97-102
16.	Suresh Dhiman, <b>Rakesh Sehgal</b> and S.K. Sharma	Comparative analysis of the total productivity for different industries – A case study.	Proc. of All India Seminar on Emerging Trends in Mechanical Engineering, NIT Kurukshetra, March 29-30, <b>2005</b> , pp. 48-54.

17.	Mohit Dhiman, <b>Rakesh Sehgal</b> and Arun Kumar	Study of wear resistance of A 390 Al-Si based alloys with variations in phosphorus.	Proc. of All India Seminar on Emerging Trends in Mechanical Engineering, NIT Kurukshetra, March 29-30, <b>2005</b> , pp. 169-174.
18.	Suresh Dhiman, <b>R. Sehgal</b> , S.K. Sharma and Vishal S. Sharma	Machining behaviour of AISi 1018 steel during turning.	Proc. of National Conference on Recent Developments and Future Trends in Mechanical Engineering, NIT Hamirpur (H.P.), Nov. 03-04, <b>2006</b> , pp. 323-30.
19.	B.S. Kaith, A.S. Singha, Inderjeet Kaur, <b>Rakesh Sehgal</b> and Aishwarya Jyoti Khanna	Applications of waste bio-mass as reducing material in P-R-F based composites and study of their mechanical and thermal behavior.	Proc. of National Conference on Recent Developments and Future Trends in Mechanical Engineering, NIT Hamirpur (H.P.), Nov. 03-04, <b>2006</b> , pp. 343-50.
20.	Amit Chauhan and <b>Rakesh Sehgal</b>	Study of mechanical properties of Al-7% Si-0.5% Mg alloy using sodium modifier.	Proc. of National Conference on Recent Developments and Future Trends in Mechanical Engineering, NIT Hamirpur (H.P.), Nov. 03-04, <b>2006</b> , pp. 351-53.
21.	<b>Rakesh Sehgal</b> and I.K. Bhat	Thrust areas in mechanical engineering-an overview and our preparedness in this direction.	Proc. of ISTE Section Annual Convention (SAC-07), NIT Hamirpur (H.P.), Nov.18-19, <b>2007</b> .
22.	P.K.Sood, <b>Rakesh Sehgal</b> and D.K. Dwivedi	Study on chip formation in machining (Al-Si-1.2Fe) hypereutectic aluminium alloy.	Proc. Of IPRoMM (National Conference on Design and manufacturing Issues in Automotive and Allied Industries), 10-11 July <b>2009</b> , Chennai, India.
23.	<b>Rakesh Sehgal</b> , Amit Chauhan and Rajesh Kumar Sharma	Analysis of an Offset-halves Journal Bearing using different grade oils	Presented and Published in the Proceedings of National Tribology Conference (NTC-2011), Dec.08-10, <b>2011</b> , IIT Roorkee, India. <b>NTC-201144</b>
24.	Manoj Kumar Nayak and <b>Rakesh Sehgal</b>	Role of Tribology in Machining: Components of MQCL System	Proceedings of National Tribology Conference (NTC-2011), Dec.08-10, <b>2011</b> , IIT Roorkee, India. <b>NTC-201145</b>
25.	Sanjeev Katoch, <b>Rakesh Sehgal</b> and Vishal Singh	Influence of Cryogenic Treatment on toughness (CVN) and Hardness of Hot Die Steel (AISI-H11),	National Conf. on Production Engineering COPE-2016, at Guru Nanak Dev Engineering College, Ludhiana (Pb.) India, October 07-08, <b>2016</b>

## Annexure- II

**i) M.Tech. Thesis Supervision : 09 No.**

S.No.	Title	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

**ii) B.Tech. Project Guidance : 44 No.**

S.No.	Title	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

### Annexure-III

**Sponsored Projects : 05 No. (54.50 Lacs)**

Period	Sponsoring Organization	Title of Project	Scheme	Amount of Grant	Status
<b>2 Years (1992-94)</b>	MHRD, Govt. of India	Modernization of Departmental Computational Lab	MODROBS	5.00 Lacs	Completed
<b>2 Years (1995-97)</b>	MHRD, Govt. of India	Design and Fabrication of Journal Bearing Test Rig to Study the Thermal Behaviour of Circular Journal Bearings (FIP)	R & D	1.75 lacs	Completed
<b>2 Years (2004-06)</b>	MHRD, Govt. of India	Experimental Investigation of the Thermal Behaviour of Elliptical and Off-set Halves Journal Bearings (TAT)	Thrust Area	10.00 Lacs	Completed
<b>2 Years (2004-06)</b>	MHRD, Govt. of India	Development of Mechatronics Lab.	MODROBS	13.00 Lacs	Completed

<b>2 Years (2009-11)</b>	UGC Govt. of India	Isoviscous and Thermal Studies of Some Non-circular Journal Bearing Profiles	Post Doctorate Research fellowship Award	<b>24.75 Lacs</b> (Salary for 2 years+ 3.00 Lacs)	Completed

#### Annexure-IV

**Expert/Invited Lectures Delivered : 36 No.**

S.No	Title of Lecture/ Lecture Series	Date, Place and Programme where lectures delivered	Other relevant information
1.	Two- Dimensional and Three-Dimensional Transformations in Geometric Modeling	4 <sup>th</sup> Nov. 1996, Dept. of Defence Research & Development, New Delhi, CEP course on "Operational Research and Statistics in Design and Development" 28 Oct-08 Nov. 96,	The course was 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 short term training programme 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 short term course on Small Hydro Power	For faculty of Engg. Insts.
5.	Design of Turbines	Dec. 16-29, 2002, NIT Hamirpur (H.P.) ISTE short term course on Small Hydro Power	For faculty of Engg. Insts. and industry
6.	Selection and Layout of Turbines	May 07-11, 2007, NIT Hamirpur (H.P.) TEQIP short term course on Small Hydro Power	For faculty of Engg. Insts. and industry
7.	Design of Turbines	May 07-11, 2007, NIT Hamirpur (H.P.) TEQIP short term course on Small Hydro Power	For faculty of Engg. Insts. and industry
8.	Computer aided design	June 02-13, 2008, NIT Hamirpur (H.P.) AICTE/ MHRD STC on CAD/CAM/Optimization Techniques	For faculty of Engg. Insts. and industry

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. Insts. and industry
10.	Industry-Institute Interaction	June 30- July 11, 2008, NIT Hamirpur (H.P.) AICTE/MHRD Orientation programme for technical teachers	For faculty of Engg. Insts.
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. Insts. and industry
12.	Tribo-testing	30 <sup>th</sup> Nov.-4 <sup>th</sup> Dec., 2009, SVNIT Surat (Gujarat) AICTE/MHRD STC on Metallurgical Aspects of Tribology	For faculty of Engg. Insts. and industry
13.	Tribo-surfaces and their characterisation	30 <sup>th</sup> Nov.-4 <sup>th</sup> Dec., 2009, SVNIT Surat (Gujarat) AICTE/MHRD STC on Metallurgical Aspects of Tribology	For faculty of Engg. Insts. and industry
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. Insts. and industry
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. Insts.
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. Insts., Universities & Inds.

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. Insts., Universities & Inds.
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. Insts., Universities & Inds.
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 Industries
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 "6 <sup>th</sup> 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 “ <b>ISTE Section Annual Convention “SAC-15”</b> ”, 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 NITTTTR, 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

#### Annexure-V

**Conferences/Short Term Courses Organised : 16 No.**

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.	46 <sup>th</sup> 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	May 26-30, 2014

#### Annexure-VI

**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	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)	NITTTR, 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
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### Annexure-VII

**Short Term Courses Attended : 22 No.**

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"	M.N.R.E.C., Allahabad; ISTE	Dec. 20, 1993 to Jan. 1, 1994
3.	Summer school on "Metal Forming – Theory and Practice"	Punjab Engg. College, 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	Feb.17-28, 2003
12.	STTP on "Visual Basic 6.0"	NIT Hamirpur (H.P.); SPIC & NITTTR, CHD	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, CHD	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-VIII

##### Awards/distinctions/honours/membership of National Committees

1.	Won <b>Best Teacher Award</b> for the year 2006-2007.
2.	Served as <b>Member</b> , National Executive of Indian Society of Theoretical and Applied Mechanics (ISTAM) w.e.f. Dec. 1998 to Dec. 2001.
3.	Served as <b>Vice-President</b> of Indian Society of Theoretical and Applied Mechanics (ISTAM) w.e.f. Dec. 2001 to Dec. 2003.
4.	Chaired a technical session in the “All India Seminar on Emerging Trends in Mechanical Engineering” held at NIT Kurukshetra during March 29-30, 2005.

5.	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.
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 <b>Reliability Engineering &amp; Systems Safety Journal (International), Journal of Engineering Design (International).</b>
8.	Reviewer for <b>International Journal of Precision Engineering and Manufacturing,</b> Reviewed manuscript No. E07-76 Titled “Cellular Manufacturing-The heart of Manufacturing, April 18, 2008.
9.	<b>Awarded Post Doctorate Fellowship by UGC,</b> 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 <b>International Journal of Materials and Manufacturing Processes,</b> Reviewed manuscript No. LMMP-2010-0339 titled “The new methods of graphite nodules detection in ductile cast iron”, Sept., 2010.
11.	Reviewer for <b>The Arabian Journal for Science and Engineering B: Engineering,</b> 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 <b>Member, National Executive Committee of Indian Society of Theoretical and Applied Mechanics (ISTAM)</b> for <b>two years</b> w.e.f. Dec., 2010.
13.	Nominated as <b>Member, National Executive Committee of Tribology Society of India (TSI)</b> for <b>two years</b> w.e.f. Dec., 2010.
14.	Reviewer for <b>International Journal of Materials and Manufacturing Processes,</b> Reviewed manuscript No. LMMP-2011-0627 titled “Effect of process parameters on porosity during spray rolling of 7050Al”, Nov.,2011
15.	Member, Organising 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 ‘ <b>Best Paper Award</b> ’ 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 ‘ <b>Best Paper Award</b> ’ 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 <b>International Journal of Journal of Quality in Maintenance Engineering</b> , Reviewed manuscript No. JQME-04-2013-0015.R1 titled “ <b>Annual maintenance budget estimation for a plant system – Digraph model and matrix approach</b> ”, March,2014
20.	Reviewer for <b>International Journal of System Assurance Engineering and Management [Springer]</b> , Reviewed manuscript titled “ <b>Equipment redesign feasibility through maintenance-work-order records using fuzzy cognitive maps</b> ”, April,2014
21.	Reviewer for <b>International Journal of Applied Research in Quality of Life</b> , Reviewed manuscript No. ARIQ-D-14-00074 titled “ <b>Modeling regional disparities for a balanced quality of life and apportioning public funding - a graph theoretical approach</b> ”, May, 2014
22.	Chaired a technical session in the International Academic Conference, June 8-12, 2014, Munich, Germany
23.	Nominated as Member, Senate of SLIET Longowal for a period of 2 years w.e.f. March 02, 2015
24.	Chaired a technical session in the of International Conference on Science, Management, Engineering & Technology (ICSMET 2015), March 18-19, <b>2015</b> , Dubai, UAE

#### Annexure-IX

**Membership of Professional Societies : 07 No.**

1.	Life member of the <b>Institution of Engineers (India)</b> , Membership No. AM- 056576.
2.	Life member of the <b>Indian Society for Technical Education (ISTE)</b> , Membership No. LM-7980.
3.	Life member of the <b>Association for Machines and Mechanisms (AMM)</b> , Membership No. LM-059.
4.	Life member of the <b>Indian Society of Theoretical and Applied Mechanics (ISTAM)</b> , Membership No. L-369.
5.	Life member of the <b>Tribology Society of India (TAI)</b> , Membership No. LM-3690.
6.	Member of ASME
7.	Life member of <b>Materials Research Society of India (MRSI)</b> , Membership No. LMB-2053.

#### Annexure-X

**Countries Visited for Professional Activities : 07 No.**

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

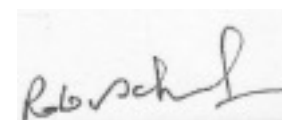
#### Annexure-XI

**Management and Institutional Development Activities : 29 Years**

S.No	From	To	Position held	Contribution
1.	July, 1988	July, 1989	Incharge, Central Workshop	Designed Layouts for installation of machines in various shops.

2.	July, 1988	July, 1989	OIC, College Cricket Team	
3.	July, 1992	June, 1994	Member, Admission Committee	Streamlined admission process
4.	July, 1993	July, 1997	Member, committee for implementation of <b>Autonomous Status</b> in R.E.C., Hamirpur	Prepared draft document for implementation of autonomous status
5.	Dec., 1993	April, 1996	<b>Warden</b> , Kailash Boys Hostel	Added many new facilities to hostel by proper financial management
6.	May, 1997	Aug., 1999	<b>Head, Mech. Engg. Dept.</b>	Designed various Labs and Machine layouts in the labs.
7.	June, 1998	Oct. , 1999	<b>Co-ordinator, STBU of IREP</b>	Installation and maintenance of many solar devices in the state of H.P.
8.	Oct. 2000	Aug., 2002	<b>Proctor</b>	General discipline of students on and off campus.
9.	March 01, 2000	March 12, 2000	<b>Head, Mech. Engg. Dept.</b>	Established various advanced labs in the dept.
10.	Jan. 29, 2004	Feb. 13, 2006	<b>Head, Mech. Engg. Dept.</b>	Established various advanced labs in the dept.
11.	July, 2004	Dec., 2005	<b>Member</b> , Academic Council, R.E.C. Hamirpur (H.P.)	Contributed in drafting academic rules and regulations
12.	Feb., 2004	Feb., 2008	Member, Exchange Purchase Committee of the Institute	Contributed in purchase and successful installation of VOD
13.	Jan., 2004	March, 2009	<b>Nodal Officer (Procurement)</b> under TEQIP	Purchased equipment & furniture for all the depts.
14.	March, 2006	Till date	<b>Member, Senate</b> , NIT Hamirpur (H.P.)	Contributed for taking important academic decisions.
15.	Feb., 2006	June, 2007	<b>Member Senate SUGC</b> , NIT Hamirpur (H.P.)	Contributed for taking important academic decisions.
16.	Feb., 2006	April, 2007	<b>Editor</b> , Institute Information Brochure, NIT Hamirpur (H.P.)	Published first issue of Institute Information Brochure
17.	Feb., 2006	April, 2007	<b>Dean (IRD&amp;C)</b> , NIT Hamirpur	Made <b>compendium of Rules and Regulations</b> for the first time. <b>Streamlined procedures</b> for sponsoring faculty and staff for conferences, summer/ winter schools and training programmes.
18.	Feb., 2008	June, 2009	<b>Co-ordinator</b> , Industry-Institute Interaction	Secured membership of CII, Northern Region; Arranged

				lectures by Experts from Industry
19.	Feb., 2008	Feb. 2010	<b>Chairman</b> , SUGC, NIT Hamirpur	<b>Made UG Manual</b> , Helping in taking important academic decisions.
20.	Nov. 15, 2010	Jan. 08, 2014	<b>Dean</b> (Faculty Welfare), NIT Hamirpur	Sponsorship of faculty for various courses, conferences, training, workshops etc., Implementation of PDA, Monitoring of civil works etc., Monitoring of all sponsored research projects undertaking by different depts./ centres
21.	Jan. 09, 2014	July 31, 2014	<b>Coordinator</b> (Testing & Consultancy)	Regulate testing and consultancy work undertaken by various teaching depts. and centres of NIT Hamirpur (H.P.)
22.	Aug. 01, 2014	July 31, 2017	<b>Director cum Principal</b> , RGGEC Kangra (H.P.)	Setting up of a new Engineering College in Himachal Pradesh
23.	Nov. 09, 2017	Till date	<b>Director, NIT Srinagar (J&amp;K)</b>	Overall Administration



**(Dr. Rakesh Sehgal)**