



Dr. Ankush Raina

Assistant Professor
School of Mechanical
Engineering,
Faculty of Engineering,
Shri Mata Vaishno Devi
University,
Katra, 182320.
India.

+91-9419167410

+91-7006911052

ankush.raina@smvdu.ac.in

ankush.smvd@gmail.com

Research Profile

 <https://rb.gy/fyfj9>

 <https://rb.gy/7lfab>



[Google Scholar](#)



[Scopus](#)

Personal Details

Father's Name :
Sh. Suraj Parkash
D.O.B.: Nov-01-1988
Nationality: Indian
Marital Status: Married
Languages known: Hindi,
English, Dogri.

CV

Objective

Contribution towards continuous learning and creativity, by providing exposure to new ideas that stimulates personal as well as professional growth.

Areas of Interest

- ✓ Nano-lubrication
- ✓ Tribology of bio oils
- ✓ Fluids Engineering
- ✓ 3D Printing

Carrier Achievements

- ❖ Listed among world's top 2 % scientists by Stanford's University in 2024.
- ❖ M. Tech. Gold Medallist.
- ❖ GATE Qualified.

Research Experience

- ☞ Working in the field of Nano lubrication, Tribology of Materials and 3D Printing technology. Performed different studies pertaining to the evaluation of mechanical and tribological properties.
- ☞ Guided 10 M. Tech. students, wherein different studies related to the following were performed:
 - ❖ Nano lubrication characteristics of PAO oil using different nanoparticles.
 - ❖ Lubrication characteristics of different vegetable oils using nanoparticles.
 - ❖ Mechanical and tribological characteristics of various types of 3D Printed polymeric composites.
 - ❖ Investigated the effect of surface texturing on lubrication characteristics for 3D printed polymeric materials.
 - ❖ Performed preliminary studies on 3D printed materials for biomedical applications (dental bite blockers, tongue retractors, surgical retractors and exo skeletons).
- ☞ **Filed patents in the area of Biomedical Engineering.**
- ☞ Published around 60 articles in SCI/SCIE/ Scopus indexed journals.
- ☞ Guest Editor of a Special issue on "Sustainability Aspects of Additive Manufacturing Technologies" of the journal *Sustainable Operations and Computers*, Elsevier.
- ☞ Editorial Board Member of
 - ☞ *Industrial Lubrication & Tribology (IF-1.6), Emerald.*
 - ☞ *Scientific Reports (IF-3.8), Springer Nature.*
 - ☞ *Industrial Robots (IF-1.8), Emerald.*

Research Summary:

S. No.	Activity	Agency / Indexing	Number	Current Status
1	Projects	JKSTIC, HED	04	Ongoing
2	Patents	Indian Patent Office	02	1 Published, 1 Filed
3	Journal Publications	SCI/SCIE Indexed	29	Published
		Scopus Indexed	31	Published
4	Books	Scopus Indexed (Edited Volumes)	03	Published
5	Book Chapters	Scopus Indexed	11	Published
6	Conferences	In India and Abroad	22	14 conference proceedings (with ISBN)
7	Invited Lectures	In Workshops/ FDPs	09	-
8	Research Guidance	Ph. D	01	In Progress
		M. Tech.	10	9 Competed, 1 In progress
9	Best Paper Awards	In International Conferences	03	-
10	FDPs/Workshops Attended	IITs, NITs, DST, etc.	31	-
11	h- index	Scopus database	27	-
12	i –index	Scopus database	49	-
13	Citations	Scopus database	3007	-
14	Articles Reviewed	SCI/SCIE/Scopus Indexed	80+	In the past 3 - 4 years

Academic Qualifications:

Examination	Name of the Board/University	Year of Passing	Marks (%/CGPA)	Subject/ Specialisation
Secondary	JK-BOSE	2004	85.80	-
Higher Secondary	JK-BOSE	2006	78.50	Non-Medical
B.E.	Jammu University	2010	67.96	Mechanical Engineering
M. Tech.	NIT Srinagar	2013	8.91 (Gold Medal)	Mechanical System Design
Ph.D.	SMVD University	2020	8.00	Mechanical Engineering

Academic Experience

2015 – Present / SMVD University, J&K

Working as an Assistant Professor from January, 2015 to till date, in the School of Mechanical Engineering.

2013 – 2014 / NIT Jalandhar, Punjab

Worked as an Assistant Professor in the Department of Mechanical Engineering from September, 2013 to December, 2014.

Major Responsibilities:

- President, Board of Professional Activities, SMVDU (2024-25)
- Coordinator, Board of Cultural Activities, SMVDU (2023-24, 2024-25)
- Warden, Nilgiri Hostel, SMVDU (2021-22, 2022-23)
- Joint Warden, Hostel No. 4, NIT Jalandhar (2013)
- Member Secretary, Board of Studies, SME, SMVDU (2021-2024)
- Member Secretary, School Research Committee, SME, SMVDU (2021-22)
- Member Secretary, Quality Assurance Cell, SME, SMVDU (2017-18)
- Member Secretary, ACIC Implementation Committee (2023-24)
- Member, Managing Committee, SMVDU TBIC (2024-25)
- Deputy Superintendent, JKSSB Recruitment Examination (Supervisor, Social Welfare Department, June 2024 & Constable, JK Police, December 2024)
- Deputy Superintendent, SMVDSB Recruitment Examination (Junior Assistant, August 2024 & Accounts Assistant, September, 2024)

Subjects Taught:

- ❖ Fluid Mechanics (UG)
- ❖ Fluid Machines (UG)
- ❖ 3D Printing Technology (UG)
- ❖ Theory of Machines (UG)
- ❖ Dynamics of Machines (UG)
- ❖ Transport Process – I (UG)
- ❖ Advanced Fluid Mechanics (PG)
- ❖ Industrial Tribology (PG)

Patents

1. **Title:** 3D Printed bite blocker with detachable tongue retractor.
Role: Principle Inventor
Agency: Indian Patent Office
Application Type: Innovative (Biomedical Engineering)
Current Status: Published
2. **Title:** 3D Printed bite blocker with grooved lock mechanism for improved dental procedures.

Role: Principle Inventor

Agency: Indian Patent Office

Application Type: Innovative (Biomedical Engineering)

Current Status: Filed

Research Projects (Ongoing)

1. Project Title: To study the synergism of graphene and diamond nano-particles in enhancing the tribological performance of PAO oil for automotive applications.
Role: Principle Investigator
Funding Agency: JKSTIC
Duration: 2 Years
Amount: 5.75 lakhs
2. Project Title: Study of Mechanical behaviour of bioinspired 3D printed functionally graded structures for lightweight applications.
Role: Co-Principle Investigator
Funding Agency: JKSTIC
Duration: 2 Years
Amount: 7.00 lakhs
3. Project Title: Technological Innovation Hub by SMVDU
Role: Co-coordinator
Funding Agency: HED, J&K.
Duration: 5 Years
Amount: 20.00 lakhs

M. Tech Thesis Guided

1. Tribological properties of Vegetable oils using copper nanoparticles in 2017.
2. Investigation of lubrication characteristics of olive oil using nano additives in 2018.
3. Lubrication Characteristics of Chemically Modified Canola and Sunflower Oil in 2019.
4. Effect of surface texturing on friction behavior of polylactic acid (PLA) polymer in 2019.
5. Synergism of TiO₂ and Graphene as nano-additives for tribological applications in 2019.
6. Effect of surfactants on dispersion stability and tribological behaviour of chemically modified lubricating oil in 2020.
7. Friction behavior of hybrid AA 2024 under dry and lubricated conditions in 2021.
8. Design and fabrication of 3D printed retractor for surgical applications in 2022.
9. Mechanical and Tribological characterization of 3D printed copper Reinforced Polylactide composite in 2022.
10. Investigation of tribological and mechanical behaviour of 3D printed nylon-based polymer in 2023.

Journal Publications (SCI/SCIE Indexed)

1. Mohan, S., Anand, A., Raina, A., Kumar, P., Ul Haq, M. I., Graf, M., ... & Arvind Singh, R. (2024). High temperature tribological response of Fe-2Cu-0.8 C-CaF₂ self-lubricating composites at high speeds. *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*, 13506501241233356.
<https://doi.org/10.1177/13506501241233356> **IF-2.0**
2. Farooq, S. A., Mukhtar, S. H., Raina, A., Haq, M. I. U., Siddiqui, M. I. H., Naveed, N., & Dobrota, D. (2024). Effect of TiB₂ on the mechanical and tribological properties of marine grade Aluminum Alloy 5052: An experimental investigation. *Journal of Materials Research and Technology*.
<https://doi.org/10.1016/j.jmrt.2024.02.106> **IF-6.4**
3. Jammoria, N. S., Ul Haq, M. I., & Raina, A. (2023). Evaluation and prediction of frictional behavior of AA 2024 based hybrid composites using ANN model. *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*, 237(4), 843-859.
<https://doi.org/10.1177/13506501221118464> **IF-2.0**
4. Sriviyas, P. D., Charoo, M. S., Wani, M. F., Sehgal, R., Raina, A., Haq, M. I. U., ... & Arumugam, S. (2022). Impact of surface texturing on the tribological behaviour of aluminium-silicon (Al-Si/Al₂O₃) advanced composite under dry and lubricating conditions. *Surface Topography: Metrology and Properties*, 10(3), 035043.
[DOI 10.1088/2051-672X/ac929a](https://doi.org/10.1088/2051-672X/ac929a) **IF-2.7**
5. Gupta, G., Haq, M. I. U., Raina, A., & Shafi, W. K. (2022). Effect of epoxidation and nanoparticle addition on the rheological and tribological properties of canola oil. *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*, 236(9), 1837-1845.
<https://doi.org/10.1177/13506501211016181> **IF-2.0**
6. Farooq, S. A., Raina, A., Mohan, S., Arvind Singh, R., Jayalakshmi, S., & Irfan Ul Haq, M. (2022). Nanostructured coatings: review on processing techniques, corrosion behaviour and tribological performance. *Nanomaterials*, 12(8), 1323.
<https://doi.org/10.3390/nano12081323> **IF-5.3**
7. Sriviyas, P. D., Wani, M. F., Sehgal, R., Bisht, C. S. S., Charoo, M. S., Raina, A., & Haq, M. I. U. (2022). Synergetic effect of surface texturing and graphene nanoplatelets on the tribological properties of hybrid self-lubricating composite. *Tribology International*, 168, 107434.
<https://doi.org/10.1016/j.triboint.2022.107434> **IF-6.2**
8. Malik, A., Haq, M. I. U., Raina, A., & Gupta, K. (2022). 3D printing towards implementing Industry 4.0: sustainability aspects, barriers and challenges. *Industrial Robot: the international journal of robotics research and application*, 49(3), 491-511.
<https://doi.org/10.1108/IR-10-2021-0247> **IF-1.8**
9. Rouf, S., Raina, A., Ul Haq, M. I., & Naveed, N. (2022). Sensors and tribological systems: applications for industry 4.0. *Industrial Robot: the international journal of robotics research and application*, 49(3), 442-460.
<https://doi.org/10.1108/IR-10-2021-0225> **IF-1.8**
10. Kichloo, A. F., Raina, A., Haq, M. I. U., & Wani, M. S. (2022). Impact of carbon fiber reinforcement on mechanical and tribological behavior of 3D-Printed polyethylene terephthalate glycol polymer composites—an experimental investigation. *Journal of Materials Engineering and Performance*, 31(2), 1021-1038.
<https://doi.org/10.1007/s11665-021-06262-6> **IF-2.3**

11. Rouf, S., Raina, A., Haq, M. I. U., Naveed, N., Jeganmohan, S., & Kichloo, A. F. (2022). 3D printed parts and mechanical properties: Influencing parameters, sustainability aspects, global market scenario, challenges and applications. *Advanced Industrial and Engineering Polymer Research*, 5(3), 143-158.
<https://doi.org/10.1016/j.aiepr.2022.02.001> **IF-9.9**
12. Malik, A., Rouf, S., Haq, M. I. U., Raina, A., Puerta, A. P. V., Sagbas, B., & Ruggiero, A. (2022). Tribo-corrosive behavior of additive manufactured parts for orthopaedic applications. *Journal of Orthopaedics*, 34, 49-60.
<https://doi.org/10.1016/j.jor.2022.08.006> **IF-1.5**
13. Rouf, S., Malik, A., Raina, A., Haq, M. I. U., Naveed, N., Zolfagharian, A., & Bodaghi, M. (2022). Functionally graded additive manufacturing for orthopedic applications. *Journal of Orthopaedics*, 33, 70-80.
<https://doi.org/10.1016/j.jor.2022.06.013> **IF-1.5**
14. Raina, A., Irfan Ul Haq, M., Anand, A., Mohan, S., Kumar, R., Jayalakshmi, S., & Arvind Singh, R. (2021). Nanodiamond Particles as Secondary Additive for Polyalphaolefin Oil Lubrication of Steel–Aluminium Contact. *Nanomaterials*, 11(6), 1438.
<https://doi.org/10.3390/nano11061438> **IF-5.3**
15. Kumar, R., Ul Haq, M. I., Sharma, S. M., Raina, A., & Anand, A. (2022). Effect of water absorption on mechanical and tribological properties of Indian ramie/epoxy composites. *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*, 236(9), 1871-1879.
<https://doi.org/10.1177/13506501211005635> **IF-2.0**
16. Ul Haq, M. I., Raina, A., Mohan, S., Anand, A., & Bin Abdollah, M. F. (2021). Potential of AA7075 as a Tribological Material for Industrial Applications-A Review.
<http://nopr.niscair.res.in/handle/123456789/56514> **IF-0.846**
17. Haq, M. I. U., Raina, A., Anand, A., Sharma, S. M., & Kumar, R. (2020). Elucidating the Effect of MoS₂ on the Mechanical and Tribological Behavior of AA7075/Si₃N₄ Composite. *Journal of Materials Engineering and Performance*, 29(11), 7445-7455.
<https://doi.org/10.1007/s11665-020-05197-8> **IF-2.3**
18. Anand, R., Raina, A., Irfan Ul Haq, M., Mir, M. J., Gulzar, O., & Wani, M. F. (2021). Synergism of TiO₂ and graphene as nano-additives in bio-based cutting fluid—An experimental investigation. *Tribology Transactions*, 64(2), 350-366.
<https://doi.org/10.1080/10402004.2020.1842953> **IF-2.1**
19. Aziz, R., Haq, M. I. U., & Raina, A. (2020). Effect of surface texturing on friction behaviour of 3D printed polylactic acid (PLA). *Polymer Testing*, 85, 106434.
<https://doi.org/10.1016/j.polymertesting.2020.106434> **IF-5.1**
20. Gupta, A., Mohan, S., Anand, A., Haq, M. I. U., Raina, A., Kumar, R. & Kamal, M. (2019). Tribological behaviour of Fe–C–Ni self-lubricating composites with WS₂ solid lubricant. *Materials Research Express*, 6(12), 126507
<https://doi.org/10.1088/2053-1591/ab52d2> **IF-2.3**
21. Singh, H., Haq, M. I. U., & Raina, A. (2020). Dry sliding friction and wear behaviour of AA6082-TiB₂ in situ composites. *Silicon*, 12(6), 1469-1479
<https://doi.org/10.1007/s12633-019-00237-y> **IF-3.2**
22. Kerni, L., Raina, A., & Haq, M. I. U. (2019). Friction and wear performance of olive oil containing nanoparticles in boundary and mixed lubrication regimes. *Wear*, 426, 819-827.

- <https://doi.org/10.1016/j.wear.2019.01.022> **IF-5.0**
23. Shafi WK, Raina A, Haq MI. (2019). Performance evaluation of Hazelnut oil with copper nanoparticles - A new entrant for sustainable lubrication. *Industrial Lubrication and Tribology*
<https://doi.org/10.1108/ILT-07-2018-0257> **IF-1.6**
24. Raina, A., & Anand, A. (2018). Influence of surface roughness and nanoparticles concentration on the friction and wear characteristics of PAO base oil. *Materials Research Express*, 5(9), 1-13.
<https://doi.org/10.1088/2053-1591/aad764> **IF-2.3**
25. Raina, A., & Anand, A. (2018). Effect of nanodiamond on friction and wear behavior of metal dichalcogenides in synthetic oil. *Applied Nanoscience*, 8(4), 581-591.
<https://doi.org/10.1007/s13204-018-0695-y> **IF 3.87**
26. Shafi WK, Raina A, Haq MI. (2018). Tribological performance of avocado oil containing copper nanoparticles in mixed and boundary lubrication regime. *Industrial Lubrication and Tribology*, 70 (5), 865-871.
<https://doi.org/10.1108/ILT-06-2017-0166> **IF-1.6**
27. Raina, A., & Anand, A. (2017). Tribological investigation of diamond nanoparticles for steel/steel contacts in boundary lubrication regime. *Applied Nanoscience*, 7(7), 371-388.
<https://doi.org/10.1007/s13204-017-0590-y> **IF 3.87**
28. Singh, N., Mir, I. U. H., Raina, A., Anand, A., Kumar, V., Sharma, S. M. (2017). Synthesis and tribological investigation of Al-SiC based nano hybrid composite. *Alexandria Engineering Journal*, 57, 1323–1330
<https://doi.org/10.1016/j.aej.2017.05.008> **IF 6.8**
29. Raina, A., Harmain, G. A., & Haq, M. I. U. (2017). Numerical investigation of flow around a 3D bluff body using deflector plate. *International Journal of Mechanical Sciences*, 131, 701-711.
<https://doi.org/10.1016/j.ijmecsci.2017.08.018> **IF 7.3**

Journal Publications (Scopus Indexed)

30. Farooq, S. A., Raina, A., Haq, M. I. U., Rajabi, A., Mohan, S., & Anand, A. (2022). Tribo-corrosion behaviour of composites and coatings: An overview of influencing factors, evaluation methods and inhibitors. *Jurnal Tribologi*, 35, 92-116.
<https://jurnaltribologi.mytribos.org/v35/JT-35-92-116.pdf>
31. Chaturvedi, I., Jandyal, A., Wazir, I., Raina, A., & Haq, M. I. U. (2022). Biomimetics and 3D printing-Opportunities for design applications. *Sensors International*, 3, 100191.
<https://doi.org/10.1016/j.sintl.2022.100191>
32. Rouf, S., Malik, A., Singh, N., Raina, A., Naveed, N., Siddiqui, M. I. H., & Haq, M. I. U. (2022). Additive manufacturing technologies: Industrial and medical applications. *Sustainable Operations and Computers*, 3, 258-274.
<https://doi.org/10.1016/j.susoc.2022.05.001>
33. Javaid, M., Haleem, A., Singh, R. P., Rab, S., Haq, M. I. U., & Raina, A. (2022). Internet of Things in the global healthcare sector: Significance, applications, and barriers. *International Journal of Intelligent Networks*, 3, 165-175.

- <https://doi.org/10.1016/j.ijin.2022.10.002>
34. Farooq, S. A., Raina, A., Ul Haq, M. I., & Anand, A. (2022). Corrosion Behaviour of Engineering Materials: A Review of Mitigation Methodologies for Different Environments. *Journal of Institution of Engineers (India): Series D*, 103(2), 639-661. <https://doi.org/10.1007/s40033-022-00367-5>
 35. Gupta, G., Ul Haq, M. I., Raina, A., & Shafi, W. K. (2021). Rheological and Tribological Behavior of Sunflower Oil: Effect of Chemical Modification and Tungsten Di Sulfide Nanoparticles. *Journal of Bio-and Tribo-Corrosion*, 7(4), 1-12. <https://doi.org/10.1007/s40735-021-00593-6>
 36. Ashraf, A., Shafi, W. K., Ul Haq, M. I., & Raina, A. (2022). Dispersion stability of nano additives in lubricating oils—an overview of mechanisms, theories and methodologies. *Tribology-Materials, Surfaces & Interfaces*, 16(1), 34-56. <https://doi.org/10.1080/17515831.2021.1981720>
 37. Irfan Ul Haq, M., Khuroo, S., Raina, A., Khajuria, S., Javaid, M., Farhan Ul Haq, M., & Haleem, A. (2020). 3D printing for development of medical equipment amidst coronavirus (COVID-19) pandemic—review and advancements. *Research on Biomedical Engineering*, 1-11. *Res. Biomed. Eng.* 38, 305–315 (2022). <https://doi.org/10.1007/s42600-020-00098-0>
 38. Raina, A., Haq, M. I. U., Javaid, M., Rab, S., & Haleem, A. (2021). 4D Printing for Automotive Industry Applications. *Journal of The Institution of Engineers (India): Series D*, 102(2), 521-529. <https://doi.org/10.1007/s40033-021-00284-z>
 39. Raina, A., Irfan Ul Haq, M., Anand, A. *et al.* Lubrication Characteristics of Oils Containing Nanoadditives: Influencing Parameters, Market Scenario and Advancements. *J. Inst. Eng. India Ser. D* **102**, 575–587 (2021). <https://doi.org/10.1007/s40033-021-00272-3>
 40. Subramanian, J., Ramachandra, A. S., Raina, A., Ul Haq, M. I., Sharma, S. M., & Chen, X. (2021). Polymeric nanostructures for prospective tribological application in miniaturized devices: a review. *Current Nanomaterials*, 6(2), 85-89. <https://doi.org/10.2174/2405461505999201208213019>
 41. Kichloo, A. F., Aziz, R., Haq, M. I. U., & Raina, A. (2021). Mechanical and physical *Industrial and Systems Engineering*, 38(4), 484-502. <https://doi.org/10.1504/IJISE.2021.116929>
 42. Javaid, M., Haleem, A., Singh, R. P., Haq, M. I. U., Raina, A., & Suman, R. (2020). Industry 5.0: Potential applications in COVID-19. *Journal of Industrial Integration and Management*, 5(04), 507-530. <https://doi.org/10.1142/S2424862220500220>
 43. Baba, Z. U., Shafi, W. K., Haq, M. I. U., & Raina, A. (2019.) Towards sustainable automobiles-advancements and challenges. *Progress in Industrial Ecology – An International Journal*, 13(4) <https://doi.org/10.1504/PIE.2019.10023629>
 44. Gupta, S., Haq, M. I. U., Mohan, S., Anand, A., Raina, A., Dutta, V. & Kumar, R. (2019). “Evaluation of mechanical properties of ramie/banana reinforced hybrid composites” *Journal of Mechanical Engineering*, Vol. SI 8, page no., 31 Dec. 2019. <https://ir.uitm.edu.my/id/eprint/41968>

45. Khajuria, A., Akhtar, M., Pandey, M. K., Singh, M. P., Raina, A., Bedi, R., & Singh, B. (2019). Influence of ceramic Al₂O₃ particulates on performance measures and surface characteristics during sinker EDM of stir cast AMMCs. *World Journal of Engineering*, 16(4), 526-538.
<https://doi.org/10.1108/WJE-01-2019-0015>
46. Chadha, A., Haq, M. I. U., Raina, A., Singh, R. R., Penumarti, N. B., & Bishnoi, M. S. (2019). Effect of fused deposition modelling process parameters on mechanical properties of 3D printed parts. *World Journal of Engineering*.
<https://doi.org/10.1108/WJE-09-2018-0329>
47. Kumar, R., Ul Haq, M. I., Raina, A., & Anand, A. (2019). Industrial applications of natural fibre-reinforced polymer composites—challenges and opportunities. *International Journal of Sustainable Engineering*, 12(3), 212-220.
<https://doi.org/10.1080/19397038.2018.1538267>
48. Shafi, W. K., Raina, A., & Ul Haq, M. I. (2018). Friction and wear characteristics of vegetable oils using nanoparticles for sustainable lubrication. *Tribology-Materials, Surfaces & Interfaces*, 12(1), 27-43.
<https://doi.org/10.1080/17515831.2018.1435343>
49. Anand, A., Vohra, K., Ul Haq, M. I., Raina, A., & Wani, M. F. (2016). Tribological Considerations of Cutting Fluids in Machining Environment: A Review. *Tribology in Industry*, 38(4).
<http://www.tribology.fink.rs/journals/2016/2016-4/4.pdf>

Conference Proceedings (Scopus Indexed)

- 1 Jammoria, N. S., Ul Haq, M. I., & Raina, A. (2022). Carbon-Related Materials for Tribological Application. In *Proceedings of Fourth International Conference on Inventive Material Science Applications* (pp. 469-483). Springer, Singapore.
https://doi.org/10.1007/978-981-16-4321-7_39
- 2 Slathia, S., Anand, R., Irfan Ul Haq, M., Raina, A., Mohan, S., Kumar, R., & Anand, A. (2020). Friction and Wear behaviour of AA2024/ZrO₂ composites: effect of graphite. In *Recent Advances in Mechanical Engineering* (pp. 597-601). Springer, Singapore.
https://doi.org/10.1007/978-981-15-1071-7_49
- 3 Mohan, S., Anand, A., Haq, M. I. U., Raina, A., & Kumar, R. (2020). Calcium Fluoride a Potential Solid Lubricant for Green Tribology and Sustainability. In *Recent Advances in Mechanical Engineering* (pp. 587-595). Springer, Singapore.
https://doi.org/10.1007/978-981-15-1071-7_48
- 4 Gupta, G., Kumar, P., Raina, A., & Haq, M. I. U. (2018, August). Effect of SiC reinforcement on mechanical behavior of aluminum alloys—A review. In *AIP Conference Proceedings* (Vol. 2006, No. 1, p. 030051). AIP Publishing.
<https://doi.org/10.1063/1.5051307>
- 5 Slathia, S., Haq, M. I. U., & Raina, A. (2018, August). Fabrication and mechanical characterization of AA 2024-ZrO₂-Gr hybrid composite. In *AIP Conference Proceedings* (Vol. 2006, No. 1, p. 030047). AIP Publishing.
<https://doi.org/10.1063/1.5051303>

- 6 Singh, H., Raina, A., & Haq, M. I. U. (2018). Effect of TiB₂ on Mechanical and Tribological Properties of Aluminium Alloys—A Review. *Materials Today: Proceedings*, 5(9), 17982-17988.
<https://doi.org/10.1016/j.matpr.2018.06.130>
- 7 Haq, M. I. U., Raina, A., Vohra, K., Kumar, R., & Anand, A. (2018). An assessment of tribological characteristics of different materials under sea water environment. *Materials Today: Proceedings*, 5(2), 3602-3609.
<https://doi.org/10.1016/j.matpr.2017.11.610>
- 8 Raina, A., & Anand, A. (2018). Lubrication performance of synthetic oil mixed with diamond nanoparticles: effect of concentration. *Materials Today: Proceedings*, 5(9), 20588-20594.
<https://doi.org/10.1016/j.matpr.2018.06.438>
- 9 Kerni, L., Raina, A., & Haq, M. I. U. (2018). Performance evaluation of aluminium alloys for piston and cylinder applications. *Materials Today: Proceedings*, 5(9), 18170-18175.
<https://doi.org/10.1016/j.matpr.2018.06.153>
- 10 Anand, A., Haq, M. I. U., Vohra, K., Raina, A., & Wani, M. F. (2017). Role of Green Tribology in Sustainability of Mechanical Systems: A State of the Art Survey. *Materials Today: Proceedings*, 4(2), 3659-3665.
<https://doi.org/10.1016/j.matpr.2017.02.259>
- 11 Anand, A., Haq, M. I. U., Raina, A., Vohra, K., Kumar, R., & Sharma, S. M. (2017). Natural Systems and Tribology-Analogies and Lessons. *Materials Today: Proceedings*, 4(4), 5228-5232.
<https://doi.org/10.1016/j.matpr.2017.05.031>

Books Authored/Edited

1. **Tribology and Sustainability**, 1st Edition (2021) CRC Press (T&F Group) ISBN 9780367551469 Available online at
<https://www.routledge.com/Tribologyand-Sustainability/Katiyar-Haq-Raina-Jayalakshmi-Singh/p/book/9780367551469> (Edited)
2. **Nanomaterials for Sustainable Tribology**, 1st Edition (2023) CRC Press (T&F Group) ISBN 9781032306902 Available online at
<https://www.routledge.com/Nanomaterials-for-Sustainable-Tribology/Raina-Haq-Victoria-Mohan-Anand/p/book/9781032306902> (Edited)
3. **3D Printing and Sustainable Product Development**, 1st Edition (2024) CRC Press (T&F Group) ISBN 9781032306803 Available online at
<https://www.routledge.com/3D-Printing-and-Sustainable-Product-Development/Haq-Raina-Naveed/p/book/9781032306803> (Edited)

Invited Lectures

1. **Tribological applications of 3D Printed parts** in One week Online Faculty Development Programme on "Additive manufacturing for Sustainability and Industry 4.0" organized by the Department of Mechanical Engineering, Jamia Millia Islamia, New Delhi, from November 18–22, 2024.
2. **Embracing Sustainable Manufacturing with 3D Printing Technology** in one week Sort term Programme on *Sustainable Design and Manufacturing* organized by Faculty

Development Centre (FDC)-SMVDU under Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching of MOE, GOI at Shri Mata Vaishno Devi University, Katra, Jammu from 22nd July to 27th July 2024.

3. **Introduction to Sustainable Lubrication** in Faculty Development Programme on *Green Manufacturing* organized by the UGC-Malaviya Mission Teacher Training Centre-SMVDU from 4th March to 8th March 2024.
4. **3D Printed Technology: Introduction and Applications** in One week Skill Development Programme/Short Term Course on Fundamentals of *3D Printing and New Product Development* organized by Technology Innovation Hub, SMVDU, Katra, UT of J&K from 5th Feb to 09th Feb, 2024.
5. **Tribology of Nano Fluids For Automotive Applications** *Professional Development Program* (PDP) Organized by Society of Automotive Engineers (SAE), India on May 27, 2023.
6. **Additive Manufacturing and Surface Engineering** in One day Workshop on “*Current Industrial Scenario: Opportunities and Challenges*” organized by School of Mechanical Engineering, Shri Mata Vaishno Devi University, Katra, March 15, 2023.
7. **3D Printing and Tribology** In Five Days Faculty Development Program on ' *3D Printing & Additive Manufacturing*' conducted by Department of Mechanical Engineering, Musaliar College of Engineering and Technology, Kerala in association with Indian Society for Technical Education (ISTE) - Kerala from April, 18 - 22 2022
8. **Sustainable Lubrication** in FDP program on “*Sustainable Product Design and Manufacturing*” organized by Faculty Development Center (FDC), Shri Mata Vaishno Devi University, Katra, January 10-14, 2022.
9. **Tribological Applications of 3D Printed Parts** in FDP on “*3D Printing and Design*” held from 23rd to 27th November 2020, organized by University Institute of Engineering and Technology, M.D. University, Rohtak (AICTE Training and Learning (ATAL) Academy Program)
10. **FDM based 3D Printed Parts - Different Applications** in FDP on “*Additive Manufacturing Applications*”, Department of Mechanical Engineering, JMI, New Delhi, November 4 - 8 2019. (AICTE Training and Learning (ATAL) Academy Program on Additive Manufacturing (AM) Applications).

Book Chapters

1. Bhat, A. R., Gupta, V., Bankapalli, N. K., Saxena, P., Raina, A., & Haq, M. I. U. (2024). 3D Printing and New Product Development: Opportunities and Challenges. *3D Printing and Sustainable Product Development*, 1-20.
<https://doi.org/10.1201/9781003306238>
2. Malik, A., Jammoria, N. S., Bhat, R., Saxena, P., Haq, M. I. U., & Raina, A. (2023). Nanocomposites and tribology: Overview, sustainability aspects, and challenges. *Nanomaterials for Sustainable Tribology*, 25-51.
<https://doi.org/10.1201/9781003306276>
3. Kumar, B., Raina, A., Singh, R. P., & Haq, M. I. U. (2022). Mechanical Properties for 3D Printing of Polymers through Fused Deposition Modelling. *Optimization of Industrial Systems*, 335-351.
<https://doi.org/10.1002/9781119755074.ch27>

4. Jammoria, N. S., Haq, M. I. U., Singh, R. P., & Raina, A. (2022). Soft Computing Techniques and Aluminum Metal Matrix Composites. *Optimization of Industrial Systems*, 367.
<https://doi.org/10.1002/9781119755074.ch29>
5. Agrawal, A., Bhawnani, S., Sharma, A., Raina, A., Irfan Ul Haq, M. (2022). Mechanical Behavior of 3D Printed Polymeric Materials: Impact of Process Parameters. In: Govindan, K., Kumar, H., Yadav, S. (eds) *Advances in Mechanical and Materials Technology. Lecture Notes in Mechanical Engineering*. Springer, Singapore.
https://doi.org/10.1007/978-981-16-2794-1_59
6. Haq, M. I. U., Raina, A., Ghazali, M. J., Javaid, M., & Haleem, A. (2021). Potential of 3D printing technologies in developing applications of polymeric nanocomposites. In *Tribology of Polymer and Polymer Composites for Industry 4.0* (pp. 193-210). Springer, Singapore.
https://doi.org/10.1007/978-981-16-3903-6_10
7. Kumar, R., Haq, M. I. U., Raina, A., Sharma, S. M., Anand, A., & Abdollah, M. F. B. (2021). Tribological Behaviour of Natural Fibre Based Polymer Composites. In *Tribology of Polymer and Polymer Composites for Industry 4.0* (pp. 55-69). Springer, Singapore.
https://doi.org/10.1007/978-981-16-3903-6_4
8. Raina, A., Haq, M. I. U., Mohan, S., Anand, A., & Graf, M. (2021). Materials for Tribological Applications: An Overview. *Tribology and Sustainability*, 3-22.
<https://www.taylorfrancis.com/chapters/edit/10.1201/9781003092162-2>
9. Anand, R., Raina, A., Haq, M. I. U., Fadzli, M., & Abdollah, B. (2021). Minimum quantity lubrication for sustainable manufacturing. In *Tribology and Sustainability* (pp. 269-292). CRC Press.
<https://www.taylorfrancis.com/chapters/edit/10.1201/9781003092162-18>
10. Haq, M. I. U., Mohan, S., Raina, A., Jayalakshmi, S., Singh, R. A., Chen, X., ... & Gupta, M. (2021)., "Mechanical and Tribological Properties of Aluminum Based Metal Matrix Nanocomposites" Reference Module in Materials Science and Materials Engineering (2021) Available on Elsevier at
<https://doi.org/10.1016/B978-0-12-819724-0.00048-3>
11. Anand, R., Haq, M. I. U., & Raina, A. (2020). Bio-Based Nano-Lubricants for Sustainable Manufacturing. In *Nanomaterials and Environmental Biotechnology* (pp. 333-380). Springer, Cham.
https://doi.org/10.1007/978-3-030-34544-0_18

Presentations in International Conferences

1. Ankush Raina and Mir Irfan Ul Haq "3D Printing of hybrid materials for tribological applications" in *International Conference of Advanced Materials & Technologies for Industry 4.0 (ICAMT 4.0)* organized by Bannari Amman Institute of Technology, Tamil Nadu, during 23-24, March 2023.
2. Ankush Raina "Lubrication characteristics of bio oils using nanoparticles", in the First *International Interdisciplinary Conference on Energy, Nanotechnology and Internet*

- of Things (ENT 2023)* held at National Institute of Technology Puducherry, Karaikal, India during February 2 - 4, 2023
3. Ankush Raina “Sliding wear applications of 3D printed polymer composites”, in the *International Conference on Advances in Civil, Chemical and Mechanical Engineering “ICACCME-2022”* held at DAV University Jalandhar on 6th May, 2022.
 4. Ankush Raina and Ankush Anand, “Friction and wear behavior of 3D printed polymer composites”, *6th International Conference on Recent Trends and Advancements in Engineering and Technology (ICRTAET-2020)* Shri Mata Vaishno Devi University Katra, India, January, 17-18, 2020.
 5. Ankush Raina and Ankush Anand, “Lubrication Characteristics of Oils containing Nano additives” *6th International Conference on Advance Materials and Nanotechnology (ICANN-2019)*, IIT Guwahati, December, 18-21, 2019.
 6. Ankush Raina and Ankush Anand, “Nano diamonds as Additives with Superior Lubrication Properties” *International conference on Advancement in Engineering Sciences (AES2019)*, SMVD University, Katra, September 28-29, 2019.
 7. Love Kerni, Ankush Raina and Mir Irfan Ul Haq, “Friction and wear performance of olive oil containing nanoparticles in boundary and mixed lubrication regimes” *22nd International Conference on Wear of Materials*, Miami, Florida, USA, April 14-18, 2019.
 8. Ankush Raina, Ankush Anand, Mir Irfan Ul Haq and Sanjay Mohan Sharma “Friction and wear characteristics of diamond nanoparticles mixed with copper oxide for steel/Al alloy contacts” *22nd International Conference on Wear of Materials*, Miami, Florida, USA, April 14-18, 2019.
 9. Ankush Raina and Ankush Anand, “Lubrication Performance of synthetic oil mixed with diamond nanoparticles: Effect of concentration”, *8th International Conference on Materials Processing and Characterisation (ICMPC-2018)*, GRIET Hyderabad, India, March, 16-18, 2018.
 10. Love Kerni, Ankush Raina and Mir Irfan Ul Haq, “Performance evaluation of aluminium alloys for piston and cylinder applications”, *8th International conference on Materials Processing and Characterisation (ICMPC-2018)*, GRIET Hyderabad, India, March, 16-18, 2018.
 11. Ankush Raina and Ankush Anand, “Friction and wear characteristics of diamond nanoparticles in PAO base oil”, *International Conference on Nanotechnology: Ideas, Innovations and Initiatives (ICN: 3I-2017)*, IIT Roorkee, Uttarakhand, India, December, 06 - 08, 2017.
 12. Ankush Raina, “Flow control around a 3D-bluff body using passive device”. *4th International Conference on Recent Trends and Advancements in Engineering and Technology (ICRTAET-2017)* Shri Mata Vaishno Devi University Katra, India, November, 03-04, 2017.
 13. Ankush Raina and Ankush Anand, “A study on the friction and wear behaviour of different mechanical components”, *4th International Conference on Recent Trends and Advancements in Engineering and Technology (ICRTAET-2017)* Shri Mata Vaishno Devi University Katra, India, November, 03-04, 2017.
 14. Wani Khalid Shafi, Ankush Raina and Mir Irfan Ul Haq, “Recent advancements in Tribology : A Review”, *International Conference on Renewable Energy for*

Sustainable Environment Challenges and Remedies (ICRESE-2017) Shri Mata Vaishno Devi University Katra, India, March, 20-21, 2017.

Presentations in National Conferences

1. Ankush Raina, “Tribological aspects of diamond nanoparticles in Lubricating Oils”, *National E-Conference on Recent developments in Automobile and Mechanical Engineering (NCRDAME'21)*, Easwari Engineering College, Ramapuram, Chennai India, March, 31, 2021.
2. Ankush Raina, “Tribological Performance of Nano-additives in Lubricating Oils”, *National Conference on Engineering, Science, Technology and Management (NCESTM-2021)*, Indira Gandhi Institute of Technology, Sarang, Dhenkanal, Odisha, India, March, 27-28, 2021
3. Ankush Raina and Ankush Anand, “Drag reduction of road vehicles using active flow control devices”, *2nd National Conference on Innovative Trends in Mechanical Engineering (NCITME-2018)*, Shri Mata Vaishno Devi University Katra, India, March, 23-24, 2018.
4. Ankush Raina and Love Kerni “Nano-Lubrication for Automotive Applications” *National Conference on Emerging Trends in Materials Science (NCETMS-2018)*, Shri Mata Vaishno Devi University Katra, India, February, 7-8, 2018.
5. Ankush Raina and Ankush Anand, “Performance evaluation of bio oils using nano materials for sustainable lubrication” *National Conference on Emerging Trends in Materials Science (NCETMS-2018)*, Shri Mata Vaishno Devi University Katra, India, February, 7-8, 2018.
6. Ankush Raina, Sanjay Mohan Sharma, Rajiv Kumar and Ankush Anand, “Lubrication characteristics of plant products for sustainable development” *National Conference for Interdisciplinary Aspects of Plant Sciences (NCAPSI-2017)*” 27th APSI Scientist Meet, Shri Mata Vaishno Devi University Katra, India, November, 2-4, 2017.
7. Ankush Raina, Wani Khalid Shafi and Mir Irfan Ul Haq, “Lubrication characteristics of avocado oil containing copper nanoparticles” *National Conference for Interdisciplinary Aspects of Plant Sciences (NCAPSI-2017)*” 27th APSI Scientist Meet, Shri Mata Vaishno Devi University Katra, India, November, 2-4, 2017.
8. Ankush Raina, Akhil Khajuria and Rabinder Singh Bharj, "Assesment of Cryogenic Grinding using Liquid Nitrogen as a Coolant" *National Conference on Mechanical Engineering (NCME -2014)*, University Institute Of Engineering & Technology, Hoshiarpur, Punjab India, November, 07-08, 2014.

Conferences/ Workshops/Courses Organized

1. **Co-coordinator** of Workshop on "3D Printing for Entrepreneurs" organized by *Technology Innovation Hub, SMVDU* funded by Higher Education Department, UT of Jammu and Kashmir, on March 1st, 2024.
2. **Coordinator** of National Workshop on “Curriculum planning and Course design” organized by *School of Mechanical Engineering, Shri Mata Vaishno Devi University, Katra*, February 21, 2024.
3. **Co-coordinator** of One week Skill Development Programme/Short Term Course on “Fundamentals of 3D Printing and New Product Development” organised by

Technology Innovation Hub, SMVDU funded by Higher Education Department, UT of Jammu and Kashmir from 5th Feb to 09th Feb, 2024.

4. **Convener Organizing Committee** for “12th Chapter Convention on Quality Concepts- 2023” on Theme "Nurture Quality Concepts For A Better Future" Organised by *Quality Circle Forum of India (Delhi Chapter)* at Shri Mata Vaishno Devi University, Katra, Jammu and Kashmir, August 21, 2023.
5. **Coordinator** of National Seminar on “Smart Materials: Current Scenario and Future Prospects” organized by *School of Mechanical Engineering, Shri Mata Vaishno Devi University, Katra*, June 7, 2023.
6. **Coordinator** of National Seminar on “Essentials of Product Development” organized by *School of Mechanical Engineering, Shri Mata Vaishno Devi University, Katra*, May 3, 2023.
7. **Coordinator** Awareness program on “Cyber Crime/Fraud”, Organised by Dean Student Welfare Office, SMVDU in collaboration with the Jammu and Kashmir Police, District Reasi, April 25, 2022.
8. **Co-convener** of the International Tribology Research Symposium (ITRS-2021), organized from December 8-10, 2021, by the School of Mechanical Engineering, SMVD University, Katra, India in collaboration with School of Mechanical Engineering, SMVD University, Katra, India In collaboration with, SRM Institute of Science and Technology, Chennai, Centre for Advanced Studies, AKTU, Lucknow, India. National Institute of Technology Karnataka Surathkal, Karnataka, Universiti Teknologi MARA, Malaysia (UiTM), and University of Salerno, Italy (UNISA).
9. **Co-convener** of the International Tribology Research Symposium (ITRS-2020), organized from November 5-7, 2020, by the School of Mechanical Engineering, SMVD University, Katra, India in collaboration with SRM Institute of Science and Technology, Chennai and Centre for Advanced Studies, AKTU, Lucknow, India.
10. **Coordinator** of One week Short Term Course on Tribology for Sustainable Development organized from July 20th to July 24th, 2020, by the School of Mechanical Engineering, SMVD University, Katra, India.
11. **Coordinator** of the National Workshop on 3D Printing for New Product Development organized on September 13, 2019, SMVD University, Katra, India.
12. **Co-convener** of the International Conference on Mechanical Engineering and Allied Sciences (ICMEAS 2018), organized from September 14-15, 2018, by the School of Mechanical Engineering, SMVD University, Katra, India.

Workshops, Courses, Faculty Development Program Attended

1. Short Term Course on 'Materials Characterization Techniques' organised by *NITTTR, Chandigarh* from 04-12-2023 to 08-12-2023
2. One week Workshop on "Advancement in Renewable Energy, Design and Manufacturing (AREDM-2023)" organised by *Department of Mechanical Engineering, NIT Manipur* from 30-10-2023 to 03-11-2023
3. FDP on Challenges in “3D Printing and Post Processing” conducted by *National Institute of Technology Warangal*, Telangana from 06-03-2023 to 12-03-2023.
4. Completed 8 Module courses offered by NITTT in February, 2022.

5. AICTE-ISTE sponsored Induction/Refresher program on “Sustainable Product Design and Manufacturing Phase III” organized by *School of Mechanical Engineering, Shri Mata Vaishno Devi University, Katra*, May 21-27, 2021
6. AICTE-ISTE sponsored Induction/Refresher program on “Sustainable Product Design and Manufacturing Phase II” organized by *School of Mechanical Engineering, Shri Mata Vaishno Devi University, Katra*, April 15-21, 2021
7. AICTE-ISTE sponsored Induction/Refresher program on “Sustainable Product Design and Manufacturing Phase I” organized by *School of Mechanical Engineering, Shri Mata Vaishno Devi University, Katra*, March 18-24, 2021
8. *TEQIP-III* sponsored one week online short term course on “Future Scope in Engineering Materials and Tribology” held from September 15-19, 2020, organized by the *Department of Mechanical Engineering, Dr B R Ambedkar National Institute of Technology, Jalandhar*.
9. *TEQIP-III* sponsored one Week Online Short Term Course on “Reliability, Maintainability and Quality Issues in Process Industries” *organized at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, India* from 04- 08 August, 2020
10. Faculty Development Program on “Engineering Optimization ” organized by *School of Mechanical Engineering, Shri Mata Vaishno Devi University, Katra* from September 25-29, 2019
11. International Symposium on “Tribology for Sustainability” organized by *NIT Srinagar and National School of Engineering, Sfax, Tunisia* from June 17-21, 2019.
12. Workshop on “Professional Ethics and Human Values” conducted by Faculty development Centre *Shri Mata Vaishno Devi University, Katra* from March 11-15, 2019.
13. Workshop on “Advances in Clean energy conversion technologies and materials for energy storage applications” conducted by the School of Mechanical engineering, *Shri Mata Vaishno Devi University, Katra* from January 24-25, 2019.
14. FDP on “Best Manufacturing Practices” in Industries organized by the school of Mechanical engineering, *Shri Mata Vaishno Devi University, Katra* from December 17-21, 2018.
15. *TEQIP-III* Summer Training Program on “Active Learning” at *Indian Institute of Technology Bombay* from June 11- 15, 2018.
16. Faculty Development Program on “Foundation Programme in ICT for Education” conducted by *Indian Institute of Technology Bombay* from March 08- April 12, 2018.
17. Faculty Development Program on “Sustainable Design and Manufacturing” organized by School of Mechanical Engineering, *Shri Mata Vaishno Devi University, Katra* from February 12-16, 2018.
18. QIP Short-course on "Materials Tribology: Fundamentals and Recent Advances" organized by Department of Mechanical Engineering, *IIT (BHU), Varanasi, India* from March 23-29, 2017.
19. National Seminar on “Mechanical Engineering Research Opportunities and Challenges”, organized by School of Mechanical Engineering, *Shri Mata Vaishno Devi University, Katra* on April, 8, 2017.
20. QIP Short-course on "Tribology of Soft Matters: Biotribology, Microsystems and Automotive Applications" organized by Department of Mechanical Engineering and

Industrial Tribology, Machine Dynamics and Maintenance Engineering Centre (ITMMEC), IIT Delhi, New Delhi, India from November 7-11, 2016.

21. 6th ICT based one week Workshop "Optimization using MATLAB", organized by Department of Mechanical Engineering, *Shri Mata Vaishno Devi University, Katra in collaboration with NITTTR Chandigarh, Punjab* from October 24 - 28, 2016.
22. One day workshop on "Patent Drafting & Filing" conducted by Department of Bio Technology, *Shri Mata Vaishno Devi University, Katra and TIFAC, Department of Science & Technology, Government of India* on October, 20, 2016.
23. Workshop on "Research Methodology and Data Analysis" at Human Resource Development Centre (HRDC), *Shri Mata Vaishno Devi University, Katra (J&K)* from September, 26-28, 2016.
24. 30th Orientation Course at Human Resource Development Centre (HRDC), *Punjabi University Patiala, Punjab* from June 20 - July 16, 2016.
25. 5th ICT based workshop on Recent Trends in Automobile Engineering organized by Department of Mechanical Engineering, *Shri Mata Vaishno Devi University, Katra in collaboration with NITTTR Chandigarh, Punjab* from February 29 to March 4, 2016.
26. Short Term Course on "Quality Management Systems" organized by Department of Mechanical Engineering at *National Institute of Technology, Hamirpur (H.P.)* from July 12-16, 2014.
27. Short Term Course on "IC Engine Fuels and Combustion Technology" organized by the Department of Mechanical Engineering, *Dr. B. R. Ambedkar National Institute of Technology, Jalandhar (Punjab)* from December 14 -18, 2013.

Industrial Trainings

1. Two weeks Industrial Training at Power House Site (Various Mechanical works in Power House) from 15/06/2021 to 30/06/2021 at Jammu and Kashmir Power Development Corporation, BHEP Chanderkote, Ramban, JK, India.
2. Two weeks Industrial Training at DAM Site (Operation and maintenance of Hydraulic Gates) from 01/07/2021 to 15/07/2021 at Jammu and Kashmir Power Development Corporation, BHEP Chanderkote, Ramban, JK, India.

MOOC courses

1. Fundamentals of Fluid Power by *University of Minnesota, USA* on July 14, 2017.
<https://www.coursera.org/account/accomplishments/certificate/UZQCU4CEJ8FN>
2. The 3D Printing Revolution by *University of Illinois at Urbana-Champaign* on May 06, 2019.
<https://www.coursera.org/account/accomplishments/records/CXBD582HRXMV>
3. Introduction to Engineering Mechanics by *Georgia Institute of Technology* on January, 2020
<https://www.coursera.org/account/accomplishments/certificate/V74M8JYBWGYW>
4. Introduction to Sustainability *University of Illinois at Urbana-Champaign* on May, 2020.
<https://www.coursera.org/account/accomplishments/records/GYBAEUJQDZHV>
5. Disaster Preparedness *University of Pittsburgh* on May, 2020.

- <https://www.coursera.org/account/accomplishments/certificate/SYP35DR54YCV>
6. Material Behavior by Georgia *Institute of Technology* on July 2020.
<https://www.coursera.org/account/accomplishments/certificate/4CQGKXH2SZPU>
 7. Fundamentals of Fluid Solid Interactions by École Polytechnique on October 2020.
<https://www.coursera.org/account/accomplishments/certificate/YVZGFY5XWYUW>
 8. NPTEL course on Nature and properties of materials by IIT Kanpur from Feb to April in 2021.
 9. Materials Processing by Georgia *Institute of Technology* on March 2022.
<https://www.coursera.org/account/accomplishments/certificate/K7WBRG2B655P>
 10. Nanotechnology: A Maker's Course by *Duke University, North Carolina State University and The University of North Carolina at Chapel Hill* on December 2022.
<https://www.coursera.org/account/accomplishments/certificate/499F7JXXW96U>

Awards and Recognitions

1. Best Paper Award for paper “3D Printing of hybrid materials for tribological applications” in International Conference of Advanced Materials & Technologies for Industry 4.0 (ICAMT 4.0) organized by Bannari Amman Institute of Technology, Tamil Nadu, during 23-24, March 2023.
2. Received a grant of Rs. 15,000/- under the scheme for “Outstanding performance to the faculty members at SMVDU” wide order No. SMVDU/Adm./Estt.-FA/22/740-45 dated 20 June 2022.
3. Paper “Synergism of TiO₂ and Graphene as Nano-additives in Bio-Based Cutting Fluid-An Experimental Investigation” Tribology Transactions (2020)” featured in the Society of Tribologists and Lubrication Engineers (STLE) Magazine Tribology & Lubrication Technology(TLT) in the “*Editors Selection: Best from STLE Community*” in July 2021 edition.
4. Paper “Friction and wear performance of olive oil containing nanoparticles in boundary and mixed lubrication regimes”. *Wear*, 426, 819-827 (2019) appeared in the list of most cited articles of the journal in September, 2021.
5. Paper “Industrial applications of natural fibre-reinforced polymer composites—challenges and opportunities. *International Journal of Sustainable Engineering*” (2018) appeared at second number in the list of most cited articles of the journal in September, 2021.
6. Received a grant of Rs. 25,000/- under the scheme for “Outstanding performance to the faculty members at SMVDU” wide order No. SMVDU/Adm./Estt./19/1756-62 dated 11 March, 2019.
7. Best Paper Award for Co-authored paper “Evaluation of mechanical properties of ramie/banana reinforced hybrid composites” at 6th International Conference on Advances in Mechanical Engineering (ICAME 2019), Malaysia held during 14th to 16th August, 2019.
8. Best Paper Award for Co-authored paper “Calcium Fluoride a potential solid lubricant for Green Tribology and Sustainability” at NCAME 2019 held at NIT Delhi on 16 March, 2019.

B. Tech Projects Guided

1. Development of ceramic coatings for improving erosion resistance of steel in collaboration with IIT Delhi in 2023.
2. Effect of shielding gas on high Ni flux core welded joints of nuclear power plant steel in collaboration with IIT Jammu in 2023.
3. Operation and maintenance of Hydel Power Plant in 2022.
4. Numerical Simulation of Microfluidic Devices for Anaemia Detection in collaboration with IIT BHU, Varanasi in 2021
5. CFD based analysis of beam exit window foil and loss of vacuum accident in electron beam accelerator in 2020.
6. Evaluation of wear behavior of different automobile tyres in 2020,
7. Design and Additive Manufacturing of Pump Impeller using 3D Printing Technology in 2019.
8. Design and fabrication of Automatic Bending Machine in 2019.
9. Design and Fabrication of Atmospheric Water Generator in 2018.
10. Design and Fabrication of Pedal Powered Washing Machine in 2017.
11. Design and Fabrication of Thermo-Emf Refrigerator System in 2016.

Student Visits Coordinated

- Team Ekokart-2017, Gurugram (5 days)
- Baglihar Hydel Power Project, Ramban, J&K (04 times)
- Salal Hydel Power Project, Reasi, J&K (02 times)
- Kashmir Steel Rolling Mills, Jammu, J&K (03 times)
- Narbada Castings Unit, Jammu, J&K (01 time)
- Jamna Castings Unit, Jammu, J&K (01 time)

Administrative and Departmental Responsibilities

- Member Secretary, Physical Stock Verification committee, SMVDU (2023-24)
- Coordinator, B. Tech Project, SME, SMVDU (2023-24)
- Coordinator, M. Tech Project, SME, SMVDU (2019-23)
- Coordinator, Time Table, SME, SMVDU (2019-24)
- Coordinator, GATE, SME, SMVDU (2020-23)
- Coordinator, Fluid Mechanics Lab, SME, SMVDU (2016-24)
- Coordinator, Fluid Machines Lab, SME, SMVDU(2016-24)
- Member Secretary, Physical Stock Verification committee, SMVDU, 2024
- B. Tech Project Coordinator, SME, SMVDU (2023-24)
- M. Tech Project Coordinator, SME, SMVDU (2019-23)
- Time Table Coordinator, SME, SMVDU (2019-24)
- GATE Coordinator, SME, SMVDU (2020-23)
- Coordinator Fluid Mechanics Lab, SME, SMVDU (2016-24)
- Coordinator Fluid Machines Lab, SME, SMVDU(2016-24)
- Faculty In charge, B. Tech/M. Tech Registrations, SME, SMVDU
- Member, Nano Technology Cell, SMVDU
- Member, Food Inspection Committee, SMDU (2023-24)

- Member, Anti-Ragging Squad (2015, 2016, 2017, 2019, 2020, 2022), SMVDU
- Member, Convocation Committee (2016, 2018, 2019, 2022,2023, 2024), SMVDU
- Member, Team Ekokart-2017, SMVDU
- Member, School Examination Cell, SME, SMVDU (2016-19)
- Member, School Academic Affairs Committee, SME, SMVDU (2015-24)

Memberships

- Indian Society For Technical Education (Life Member) LM-136390
- Tribology Society of India (Life Member) LM-6091
- SAEINDIA (2024-25) (7240310111)

Declaration

I hereby declare that the information furnished by me is true to the best of my knowledge.

Date: 12/01/2025

Place: Katra

Ankush Raina