

RESUME

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Career Objectives

To actively support the institution's academic mission through quality teaching, impactful research, and committed participation in developmental initiatives, guided by integrity and continuous learning.

Education

Ph.D. (Mechanical Engineering)	Panjab University, Chandigarh	2018
M.E. (Mechanical Engineering)	PEC Chandigarh	2007 (1 st)
B. Tech (Mechanical Engineering)	REC Kurukshetra	2002 (1 st)

Current Positions

Professor, Department of Mechanical Engineering, UIET, Panjab University, Chandigarh
Programme Coordinator, NSS, Panjab University, Chandigarh (Additional Charge w.e.f. August 2023)

Patents Granted

S.N	Title	Agency	Patent No.
1.	A microwave spark joining system	German Patent (International)	202022 101790
2.	A system for fabricating copper-tungsten-Carbon nano tubes composite material electrode for edm process	Indian Patent (National)	499010
3.	A rescue device for children trapped in borewell and its working method thereof	Indian Patent (National)	559100

Research Supervision (Guided)

Ph.D. – 03 M.E. – 06

Key Appreciations

- Successfully facilitated the physical possession of Panjab University's shops situated in Amritsar, Punjab after nearly four decades, resolving a long-pending administrative matter.
- Introduced the "Research Award for the Best ICAMSE" to encourage and recognize outstanding research contributions among the faculty of Panjab University.
- Mobilized and contributed funds amounting to ₹20,84,094/- through the successful organization of self-financed international conferences (ICAMSE 2020, 2021, and 2022).
- Led multiple digital transformation initiatives to promote environmental sustainability, including reduction of paper usage in question paper setting, CAS promotion files, online diary/dispatch portal, and streamlined online affiliation processes.
- Organized a Walkathon on the theme "My Vote – My Right" in collaboration with the Chief Electoral Officer, UT, promoting civic awareness and voter participation.
- Recognized by the Regional Director of NSS (Punjab, Himachal Pradesh & UT) for effectively conducting various NSS activities and contributing to community engagement and social responsibility.

Expert Talks and Paper Presentations

- Expert Talk as a Resource Person on the topic “Design and implementation of an automated retrieval mechanism for child rescue in borewell incidence” in seminar on international research dated 09/01/2024.
- Paper presented on “surface modification of H13 Die steel on different powder mixed dielectric” at international conference on catalysis for clean energy technologies and sustainable development on 5th-6th April 2024.
- Paper presented on “Synthesis, characterization and in engineering sciences” in chascon 2024 on 06th to 8th November 2024.
- Paper presented on “Effect of carbon nanotubes in the improvement of tool wear rate and surface roughness” in International Conference on Materials for sustainable development (ICMSD -22), 19th to 20th October 2022.
- Paper presented on “ID132: Mathematical modeling in COMSOL and analytical investigations on optimizing the microwave hybrid heating process under varying cavity volumes” at international conference on electrical, computer and energy technologies, 3rd to 6th July,2025.

Academic and Administrative Achievements

- Elected member of Senate, Panjab University from 2016 onwards.
- Elected member of Syndicate, Panjab University.
- Elected member of Academic Council, Panjab University from 2018 onwards.
- Elected member of Board of Finance, Panjab University in 2022.
- Elected member of PUTA Executive.
- Coordinator of International Conference, (ICAMSE2020,2021,2022)
- Guest Editor, Materials Today: Proceedings (ELSEVIER)(ICAMSE2021 & 2022)

NSS Activities & Leadership

- Organized and coordinated awareness drives (health, environment, social issues, national campaigns)
- Conducted blood donation, cleanliness, and tree plantation drives (Van Mahotsav)
- Led cycle rallies, walkathons, marathons, and sports activities
- Coordinated workshops and orientation programmes on environment, drug abuse, and *Viksit Bharat*
- Organized Republic Day Parade and national observance events
- Recipient of **University NSS Award**

Publications

S . N o .	Name of Publication	Name of publisher, Indexing, Impact factor	Refereed/ Reputed	Impact Factor
1.	Investigation of micro-hardness of H11 die steel using composite material electrodes in EDM	Indian Journal of Engineering & Materials Sciences SCI, Impact Factor 0.615	Refereed, SCI Indexed	0.615
2.	Low Cost Joining of Inconel 625 and Super Duplex Stainless Steel 2507 through Novel Technique	Journal of Materials Engineering and Performance, SCI, Impact Factor 2.036	Refereed, SCI Indexed	2.036
3.	Optimization of mechanical properties of high strength dual phase steel through thermo-mechanical simulation	International Journal on Interactive Design and Manufacturing (IJIDeM) Scopus	Refereed, Scopus Indexed	-

4.	Analysis of additive manufacturing techniques used for maxillofacial corrective surgeries	Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science. SCI,ImpactFactor1.758	Refereed, SCI Indexed	1.758
5.	Design and heat transfer performance analysis of mini- channel heat sink with water, EG and EG20 based nano fluids- computational approach	International Journal on Interactive Design and Manufacturing(IJIDeM)Scopus	Refereed, Scopus Indexed	-
6.	Thermal performance evaluation of cellulose fiber as building insulation material	Indian Journal of Engineering & Materials Sciences SCI, Impact Factor 0.615	Refereed, SCI Indexed	0.615
7.	Application of graphite rods in producing Inconel625 (UNSN06625) joints through the use of microwave radiation energy	Indian Journal of Engineering& Materials Sciences SCI, Impact Factor 0.615	Refereed, SCI Indexed	0.615
8.	Investigation of micro-hardness of H11die Steel using composite material electrodes in EDM	Indian Journal of Engineering& Materials Sciences	Refereed, SCI Indexed	0.615
9.	Low Cost Joining of Inconel 625 and Super Duplex Stainless Steel 2507 through Novel Technique	Journal of Materials Engineering and Performance	Refereed, SCI, Indexed	2.036
10.	Optimization of mechanical properties of high Strength dual phase steel through thermo-mechanical simulation	International Journal on Interactive Design and Manufacturing (IJIDeM)	Refereed, Scopus Indexed	-
11.	Analysis of additive manufacturing techniques used for maxillofacial corrective surgeries	Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science	Refereed, SCI, Indexed	1.758
12.	Design and heat transfer performance analysis of mini-channel heat sink with water, EG and EG20based nano fluids-computational approach	International Journal on Interactive Design and Manufacturing (IJIDeM)	Refereed, Scopus Indexed	-
13.	Thermal performance evaluation of cellulose fiber as building insulation material	Indian Journal of Engineering& Materials Sciences	Refereed, SCI, Indexed	0.615
14.	Application of graphite rods in producing Inconel625 (UNSN06625) joints through the use of microwave radiation energy	Indian Journal of Engineering& Materials Sciences	Refereed, SCI, Indexed	0.615
15.	Major Developments in EDM Surface Alloying using Composite Material Tool Electrode	International Journal of Innovative Technology and Exploring Engineering(IJITEE)	Referred, Scopus Indexed	-
16.	Electronic and material realizations of fractional-order elements	Elsevier Journal, , Materials Today: Proceedings	Referred, Scopus indexed	-
17.	Analysis of approximation methods and fractional-order circuit	Elsevier Journal, , Materials Today: Proceedings	Referred ,Scopus	-

indexed

18. Effect of vertical bone loss on stress distribution at the bone-implant interface Around implants of varying diameters–an in silicon 3D finite element analysis Elsevier Journal, Materials Today: Proceedings Referred, Scopus,
19. Experimental investigations on brass material and pin–fin based heat transfer system and its Modeling by using adaptive neuro-fuzzy inference system Elsevier Journal , Materials Today: Proceedings Referred,S copus Indexed
20. Development of novel experimental procedure for microwave hybrid heating based joining Using graphite rods Elsevier Journal , Materials Today: Proceedings Referred,S copus indexed -
21. Effect of cellulose fibre based insulation on thermal performance of buildings Elsevier Journal, Materials Today: Proceedings Referred,S copus indexed -
22. Analysing the effects of solar insolation and temperature on PV cell characteristics Elsevier Journal, , Materials Today: Proceedings Referred,S copus indexed -
23. Thermal performance of buildings with light colored exterior materials Elsevier Journal, Materials Today: Proceedings Referred,S copus indexed -
24. Effect of peri-implant it is associated horizontal bone loss on stress distribution around dental implants– A 3D finite element analysis Elsevier Journal, Materials Today: Proceedings Referred, Scopus Indexed
25. Review of joining inconel alloys through microwave hybrid heating and other techniques Elsevier Journal, Materials Today: Proceedings Referred, Scopus Indexed -
26. Evolution of PV technology from conventional to nano-materials Elsevier Journal, Materials Today: Proceedings Referred, Scopus Indexed
27. Flow behaviour kinetics of Inconel 600 superalloy under hot deformation using gleeble 3800 Elsevier Journal,Materials Today: Proceedings Referred, Scopus Indexed
28. Exploring the Potential of Multi-Substituted Hydroxyapatite: Sol-Gel Synthesis, Characterization, and In Vitro Biocompatibility Study Computer research and development Scopus Indexed
29. The Machining and Surface Modification of H13 Die Steel via the Electrical Discharge Machining Process Using Graphite Mixed Dielectric Journal of Manufacturing and Material Processes Refereed, SCI, Indexed 3.3

30.	Design and development of strain gauge for biomedical applications: State of the art review	Innovation and Emerging Technologies. An International Journal on Innovative Applied Sciences, Engineering and Biomedical Research	Refereed, SCI, Indexed	2.4
31.	Mechanical Behavior of PU/MWCNT Composite Materials Under Tensile loading Conditions Using FEA	ECS Journal of Solid State Science and Technology	Refereed, SCI, Indexed	1.8
32.	Synthesis, characterization and in-vitro study of hydroxyapatite, silver substituted hydroxyapatite and iron substituted hydroxyapatite for bone tissue engineering applications	Results in Chemistry	Refereed, SCI, Indexed	2.3
33.	Ever-Expanding Role of Battery Chemistry in Sustainable Development: From Electrochemical Cells to Climate Solutions	Journal of Chemical Reviews,	Refereed ,Scopus	
34.	Sol-gel synthesis of manganese and potassium substituted hydroxyapatite: Characterization and thermal behavior	Results in Chemistry	Refereed, SCI, Indexed	2.3

Books/Chapter authored/Chapter in Edited Books/Editorship of Books:

S.N.	Title	Book Title& Publisher with Date of Publication	Whether author or editor	ISSN/ISB NNo.	International / National Publisher
1.	International Conference on Aspects of Materials Science and Engineering (ICAMSE 2021)	International Conference on Aspects of Materials Science and Engineering (ICAMSE 2021) Elsevier Publisher, Volume45, Part6, Pages 4377-5834(2021)	Editor (Book)	2214-7853	International
2.	International Conference on Aspects of Materials Science and Engineering (ICAMSE 2022)	International Conference on Aspects of Materials Science and Engineering Volume 57, Part 2, Pages:329-988(2022)	Editor (Book)	2214-7853	International
3.	Thermal Performance of Natural Insulation Materials for Energy Efficient Buildings	Artificial Intelligence, Machine Learning, and Data Science Technologies. CRC Press (12October2021)	Author (Book Chapter)	9781003153405	International
4.	Review on Surface	Advances in Materials	Book	978-981-15	International
5.	Modifications of the Workpiece by Electric Discharge Machining	Processing, Lecture Notes In Mechanical Engineering. Springer, (23June2020)	Chapter	4748-5	

6.	Modification of surface alloy	MHRD	Project (1.5lacs)	
7.	Environment Education Programme , 2023-24	Ministry of Environment, Forest & Climate Change, Govt.Of India	Project (12.5 lacs)	National
8.	Molecular Determinants and Regulatory Mechanism of nutrient exchange between plant and AMF	Arbuscular Mycorrhizal Fungi in Sustainable Agriculture: Nutrient and Crop Management	Chapter 978-981-97-0299-2	International
9.	Environment Education Programme , 2024-25	Ministry of Environment, Forest & Climate Change, Govt.Of India	Project (8.5 lacs)	National