a) Name:

Dr. Dhiraj Kumar Mahajan
Associate Professor, Department of Mechanical Engineering,
Associate Faculty, Centre of Research for Energy Efficiency and Decarbonization (CREED)
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Laboratory: Ropar Mechanics of Materials Laboratory (www.iitrpr.ac.in/rmml)

b) Date of Birth:

18/04/1979

c) Academic Qualification:

S.No.	Degree	Year	Branch/Discipline	University/Institution
1.	B.Tech.	2001	Production Engineering	Shaheed Bhagat Singh College of Engineering & Technology, Ferozepur affiliated with Punjab Technical University, Jalandhar, India
2.	M.Tech.	2003	Advanced Manufacturing Processes	National Institute of Technology Warangal, India
3.	Ph.D.	2010	Mechanical Engineering (Solid Mechanics)	Indian Institute of Technology Kanpur, India

d) Areas of Expertise:

- Fracture and fatigue behavior of material
- Materials for high-pressure hydrogen storage and hydrogen embrittlement of metals.
- Experiment and simulation-assisted development of polymers for energy and biomedical applications such as PEM Fuel Cells membranes and Cardiovascular Stents,
- Manufacturing with polymers (injection molding, rotomolding) & composites (filament winding),
- Atomistic, Dislocation Dynamics and Crystal Plasticity-based modeling of metal plasticity

e) Experience:

S. No.	Position Held (Designation)	Place of work	Duration	Area of Work
1.	Associate Professor	Indian Institute of Technology Ropar, India	December 2019-Present	Micromanufacturing, Hydrogen Storage, Hydrogen Embrittlement, Fuel Cells, Polymer Electrolyte Membranes
2.	Assistant Professor	Indian Institute of Technology Ropar, India	December 2013-December 2019	Hydrogen Storage, Hydrogen Embrittlement, Polymer Electrolyte Membranes

3.	Visiting Academic Professor	University of Sorbonne Paris Nord, Paris, France	June 2023-July 2023	Hydrogen Embrittlement
4.	Visiting Faculty	ICAMS, Ruhr University Bochum, Germany	May 2014-July 2014	Polymer-metal Adhesion
5.	Post-Doctoral Research Associate	Department of Micromechanical and Macroscopic Modelling, ICAMS, Ruhr University Bochum, Germany	January 2010-December 2013	Polymer-metal Adhesion, Metal Plasticity, Multiscale Material Modeling

f) Publications (Nos.)

- Books: 3 (Chapters)
- Research Papers: 40
- Patents: 3 granted, 3 filed

g) List of publications

S. No.	Journal Name	Title	Year of Publication	Authors or Co-Authors	Impact factor
1.	Polymer	Micromechanics of the growth of a craze fibril in glassy polymers	2005	Basu S.; Mahajan D.K.; Van Der Giessen E.	4.1
2.	Journal of the Mechanics and Physics of Solids	Ageing and rejuvenation in glassy amorphous polymers	2010	Mahajan D.K.; Estevez R.; Basu S.	5
3.	Modelling and Simulation in Materials Science and Engineering	Investigations into the applicability of rubber elastic analogy to hardening in glassy polymers	2010	Mahajan D.K.; Basu S.	1.9
4.	Physical Review E - Statistical, Nonlinear, and Soft Matter Physics	Coarse-graining scheme for simulating uniaxial stress-strain response of glassy polymers through molecular dynamics	2010	Majumder M.K.; Ramkumar S.; Mahajan D.K.; Basu S.	2.2
5.	International Journal of Applied Mechanics	On the simulation of uniaxial, compressive behavior of amorphous, glassy polymers with molecular dynamics	2010	Mahajan D.K.; Basu S.	2.9
6.	Physical Review E - Statistical, Nonlinear, and Soft Matter Physics	Void nucleation and disentanglement in glassy amorphous polymers	2010	Mahajan D.K.; Singh B.; Basu S.	2.2
7.	Physical Review E - Statistical, Nonlinear, and Soft Matter Physics	Mechanisms of crazing in glassy polymers revealed by molecular dynamics simulations	2012	Mahajan D.K.; Hartmaier A.	2.2

8.	Modelling and Simulation in Materials Science and Engineering	A scheme to combine molecular dynamics and dislocation dynamics	2012	Brinckmann S.; Mahajan D.K.; Hartmaier A.	1.9
9.	International Journal of Pressure Vessels and Piping	Role of prior austenite grain boundaries in short fatigue crack growth in hydrogen charged RPV steel	2019	Singh R.; Singh A.; Singh P.K.; Mahajan D.K.	3
10.	International Journal of Hydrogen Energy	Hydrogen induced blister cracking and mechanical failure in X65 pipeline steels	2019	Singh V.; Singh R.; Arora K.S.; Mahajan D.K.	8.1
11.	Modelling and Simulation in Materials Science and Engineering	Role of stress triaxiality on ductile versus brittle fracture in pre-cracked FCC single crystals: An atomistic study	2019	Singh R.; Mahajan D.K.	1.9
12.	Materials Chemistry Frontiers	A carbon quantum dot and rhodamine-based ratiometric fluorescent complex for the recognition of histidine in aqueous systems	2019	Singh H.; Sidhu J.S.; Mahajan D.K.; Singh N.	6
13.	International Journal of Pressure Vessels and Piping	Effect of microstructural features on short fatigue crack growth behaviour in SA508 Grade 3 Class I low alloy steel	2020	Singh R.; Singh A.; Singh P.K.; Mahajan D.K.	3
14.	Journal of the Mechanics and Physics of Solids	Hydrogen distribution in metallic polycrystals with deformation	2020	Kumar R.; Mahajan D.K.	5
15.	Journal of Nuclear Materials	In-situ investigations of hydrogen influenced crack initiation and propagation under tensile and low cycle fatigue loadings in RPV steel	2020	Singh R.; Singh V.; Arora A.; Mahajan D.K.	2.8
16.	Sensors and Actuators, B: Chemical	A low-cost device for rapid 'color to concentration' quantification of cyanide in real samples using paper-based sensing chip	2020	Singh H.; Singh G.; Mahajan D.K.; Kaur N.; Singh N.	8
17.	Materials Science and Engineering: A	Towards the prediction of intergranular fatigue crack initiation in metals due to hydrogen	2020	Arora A.; Singh H.; Mahajan D.K.	6.1

18.	Computational Materials Science	On the transition of fracture toughness in metallic materials with thickness: An atomistic viewpoint	2020	Singh R.; Mahajan D.K.	3.1
19.	Tribology International	Cavitation erosion resistant nickel-based cermet coatings for monel K-500	2021	Singh N.K.; Ang A.S.M.; Mahajan D.K.; Singh H.	6.1
20.	Journal of Thermal Spray Technology	Characterization and Slurry Erosion Mechanisms of Nickel-Based Cermet Coatings on Monel K-500	2021	Singh N.K.; Kumar A.; Ang A.S.M.; Mahajan D.K.; Singh H.	3.2
21.	Philosophical Magazine	Effect of stable stacking fault energy and crystal orientation on fracture behaviour of thin metallic single crystals	2021	Singh R.; Mahajan D.K.	1.5
22.	Theoretical and Applied Fracture Mechanics	Hydrogen assisted crack initiation in metals under monotonic loading: A new experimental approach	2021	Arora A.; Kumar R.; Singh H.; Mahajan D.K.	5
23.	Carbon Trends	Effect of multi-walled carbon nanotubes on DC electrical conductivity and acetone vapour sensing properties of polypyrrole	2022	Husain A.; Mahajan D.K.	3.1
24.	Surface and Coatings Technology	Cavitation erosion mechanisms of HVOF-sprayed Ni-based cermet coatings in 3.5% NaCl environment	2022	Singh N.K.; Vinay G.; Ang A.S.M.; Mahajan D.K.; Singh H.	5.3
25.	International Journal of Plasticity	Coupled diffusion-mechanics framework for simulating hydrogen assisted deformation and failure behavior of metals	2022	Singh V.; Kumar R.; Charles Y.; Mahajan D.K.	9.4
26.	Mechanics of Materials	Modelling of hydrogen-assisted damage at the deforming single crystal crack-tip	2023	Kumar R.; Mahajan D.K.	3.4
27.	Protection of Metals and Physical Chemistry of Surfaces	Corrosion and Thermal Analysis of 316L Stainless Steel Coated PLA Parts Fabricated by FDM Process for Biomedical Applications	2023	Kumar R.; Kumar M.; Chohan J.S.; Singh N.K.; Mahajan D.K.	1.1
28.	Diamond and Related Materials	Corrosion behaviour of laser textured and	2023	Kumar V.; Singh N.K.; Verma R.;	4.3

		WCCoCr+GNPs coated IS-2062 steel		Mahajan D.K.; Sharma V.S.	
29.	Transactions of the Indian National Academy of Engineering	An Experimentally Informed Computational Framework for Investigating the Role of Surface Roughness on High Cycle Fatigue Life of LPBF IN718	2023	Kumar S.; Mahajan D.K; Bouhattate J.; Srinivasan D.	-
30.	Chemical Engineering Journal	Atomistic simulation and synthesis of novel sulfonated Polyimide polymer electrolyte membranes with facile proton transport	2023	Rohilla T.; Husain A.; Singh N.; Mahajan D.K.	13.3
31.	Modelling and Simulation in Materials Science and Engineering	On the role of vacancy-hydrogen complexes on dislocation nucleation and propagation in metals	2023	Arora A.; Singh H.; Adlakha I.; Mahajan D.K.	1.9
32.	International Journal of Hydrogen Energy	Hydrogen-assisted intergranular fatigue crack initiation in metals: Role of grain boundaries and triple junctions	2023	Kumar R.; Arora A.; Mahajan D.K.	8.1
33.	International Journal of Fatigue	Fatigue response of glass-filled epoxy composites: A crack initiation and propagation study	2023	Arora A.; Sharma A.; Singh M.; Mahajan D.K.; Kushvaha V.	5.7
34.	Computational Materials Science	Designing sulfonated polyimide-based fuel cell polymer electrolyte membranes using machine learning approaches	2023	Rohilla T.; Singh N.; Krishnan N.C.; Mahajan D.K.	3.1
35.	Journal of Science: Advanced Materials and Devices	Harnessing sustainable N-doped activated carbon from walnut shells for advanced all-solid-state supercapacitors and targeted Rhodamine B dye adsorption	2024	Husain A.; Ansari K.; Mahajan D.K.; Kandasamy M.; Ansari M.N.M.; Giri J.; Al-Lohedan H.A.	6.7
36.	Dalton Transactions	Facile synthesis of a three-dimensional Ln-MOF@FCNT composite for the fabrication of a symmetric supercapacitor device with ultra-high energy density: overcoming the energy storage barrier	2024	Khan M.Y.; Husain A.; Mahajan D.K.; Muaz M.; Shahid M.; Zeeshan M.; Sama F.; Ahmad S.	3.5

37.	Materials Science and Engineering: A	Investigation into hydrogen assisted fracture in Nickel oligocrystals	2024	Singh V.; Raj A.; Mahajan D.K.	6.1
38.	Journal of Science: Advanced Materials and Devices	Harnessing sustainable N-doped activated carbon from walnut shells for advanced all-solid-state supercapacitors and targeted Rhodamine B dye adsorption	2024	Husain A.; Ansari K.; Mahajan D.K.; Kandasamy M.; Ansari M.N.M.; Giri J.; Al-Lohedan H.A.	6.7
39.	Fatigue and Fracture of Engineering Materials and Structures	Role of grain size and anisotropy of neighboring grains in hydrogen-assisted intergranular fatigue crack initiation in austenitic stainless steel	2024	Arora A.; Singh M.; Nair V.; Singh H.; Mahajan D.K.	3.373
40.	International Journal of Hydrogen Energy	Hydrogen embrittlement in Nickel oligocrystals: Experimentation and crystal plasticity-phase field fracture modeling	2024	Singh V.; Raj A.; Charles Y.; Mahajan D.K.	

h) Knowledge Dissemination (books / monographs / book chapters / completed or in progress)

Document Title	**Authors**	**Completed or In Progress**	**Year**	**Citations**
Book Chapter: Total cost of ownership analysis of fuel cell electric vehicles in India	U. R. Sontakke, S. Jaju, D. K. Mahajan,	Completed	2024	2
Book Chapter: Crystal orientation e ect on SIF in single crystals: A study based on coupled framework of XFEM and crystal plasticity model.	R. Singh, and D. K. Mahajan,	Completed	2018	1
Book Chapter: Investigation into hydrogen induced blister cracking and mechanical failure in pipeline steels.	V. Singh, K. S. Arora, and D. K. Mahajan,	Completed	2022	0
Book Chapter: Hydrogen storage and transportation: utilizing liquid organic hydrogen carriers and existing natural gas pipelines	Y. Saini, A. Singh, D. K. Mahajan and H. Tyagi	In Progress	2024	-

i) List of projects completed indicating briefly title, sponsoring agency, duration and outcome of project

S.No.	Title	Sponsoring Agency	Duration	Role: Principal Investigator (PI) / Consultancy Incharge (CI)	Outcome of the project
1	Biodegradable Polymeric Stents: From Synthesis of Functionalized Raw Material to its Fabrication using Micro Injection Moulding Process	DST Advanced Manufacturing Technology Program	2018-2022	PI	In this project, India's first cardiovascular plastic based bioresorbable stent was developed using microinjection molding process
2	IIT Ropar as National Resource Centre for Manufacturing	MHRD	2018-19	PI	Developed 20 hours MOOC Course floated on Swayam platform on Manufacturing with 5 hours video content by Industry leaders in various domains of Manufacturing
3	Additive Manufacturing & Machine Learning based Development of Indigenous Hydrogen Fuel Cell Stack	DST	Ongoing	PI	In this ongoing project, novel polymer electrolyte membranes are development using material discovery through Machine Learning framework along with the ongoing work of developing a 100W fuel cell using additive manufacturing
4	Development of an Effluent Treatment Plant for Hand tool Industry	Uchchatar Avishkar Yojana (MHRD-DST-MSME)	2016-2021	PI	In this work, effluent treatment process is proposed based on newly developed Ion Exchange Resins suitable for treating concentrated nickel and concentrated chromium effluents (as per the approved objectives of the project) within the

					premises of the industry partner.
5	Study of the Effect of Microstructure on Fatigue Crack Initiation in Nickel under Hydrogen Environment using Coupled Framework of Crystal Plasticity & Hydrogen Transport Mode	DST-SERB	2015-2019	PI	In this work, a novel multiphysics model was proposed to understand hydrogen embrittlement phenomena in metals based on Crystal Plasticity Finite Element Framework
6	Design, development, and demonstration of indigenous hydrogen storage and fuel cell system for mobile and stationary applications of 5 kW capacity	IMPRINT-MHRD	2017-2022	Co-PI	In this project, a prototype of 18 liters Type IV tanks was developed using pre-manufactured plastic liners from abroad while designing of composite winding was done in-house along with end-to-end manufacturing and burst testing done in India.
7	Grant under the fund for the improvement of S&T infrastructure (FIST).	DST	2015-2020	Co-PI	I was responsible for establishing two facilities in the department i.e., Tensile/Fatigue stage for SEM and EBSD for SEM under this grant
8	Synthesis and validation of germicidal coating for BOPP films	Max Speciality Films Limited (MSFL), Nawanshahr, Punjab	2022	Co-CI	In this work, novel anti-viral coatings were developed for controlling corona virus spread through plastic packaging
9	Design Support for Negative Pressure Ambulance and Isolation Room for Covid19 Patients	Bafna Healthcare Pvt. Ltd.	April 2021-August 2021	CI	In this work, India's first negative pressure ambulance was developed for transporting patients

					suffering from contagious diseases (Related Links: Link-1, Link-2)
10	Design and development of a customized elastomeric balloon for a constant air pressure output bio-medical device	COEO Labs	2016	CI	In this work, novel elastomeric balloons were developed that were used to develop a medical device naming SAANS which is a low cost multi powered neonatal transport CPAP
11	Development of Gas Driven Mini-Turbine for Automotive Applications	Enerstrong Technologies Pvt. Ltd	2021-ongoing	CI	In this ongoing project, a mini turbine that uses high pressure gas to generate electricity is being developed for automotive applications
12	Designing of gas turbines for energy storage	EarthEn Inc (USA based startup)	2022-23	CI	In this project, design work of super critical CO2 based turbine was performed
13	Projects through CSR funding from ANSYS to work on the development of two biomedical products	CSR Funding from Ansys Softwares Pvt. Ltd (India)	2020-2022	PI	In this CSR project, Ansys supported development of two novel medical devices for which patents are filled
14	Independent Verification Agency for Technical Education Quality Improvement Programme-III executed by NPIU	MHRD & World Bank	2018-19	CI	In this project, the output of TEQIP-III program of MHRD & World Bank related to GATE examination training was verified in more than 100 colleges as Independent Verification Agency.
15	Establishment of NABL Accredited Sustainability Laboratory at IIT Ropar	Toppan Speciality Films Limited (TSFL, previously MSFL),	2023-ongoing	PI	In this ongoing CSR project, I am responsible for establishing a NABL accredited Sustainability Laboratory dealing

		Nawanshahr, Punjab			with biodegradability testing of plastics and promoting the use of hydrogen a zero-emission solution for industry
16	Feasibility Study – Converting non-recyclable plastic into green hydrogen	FCDO representing the government of U.K. of Great Britain and Northern Ireland	2023-24	CI	A feasibility study was performed to evaluate various technologies for converting non-recyclable plastic into green hydrogen including their techno-commercial aspects

j) Details of materials/prototype/device already developed in past

1) Patent Title: A Bioresorbable Cardiovascular Stent, Applicant: Indian Institute of Technology Ropar, Inventors: Dharmendra Kumar TYAGI & Dhiraj K. MAHAJAN, Date of Filing: 06/03/2024, Application No: 202411015887, Country of filing: India
2) Patent Title: Methodology to Extract Stress Maps from Electron Backscatter Diffraction Data, Applicant: Indian Institute of Technology Ropar, Inventors: Aman ARORA & Dhiraj K. MAHAJAN, Status: **Granted**, Patent No. 426533, Date of Filing: 07/03/2020, Date of Grant: 23/03/2023, Application No. 202011009920, Country of filing: India
3) Patent Title: Leak Proof Liner-Boss Assembly for Type IV Hydrogen Storage Tanks, Applicant: Indian Institute of Technology Ropar, Inventors: Dhiraj K. MAHAJAN, Srikant Shekhar PADHEE, Ravi Mohan PRASAD and Mukesh KUMAR, Status: **Granted**, Patent No. 478710, Date of Filing: 28/05/2020, Date of Grant: 07/12/2023, Application No. 202011022281, Country of filing: India
4) Patent Title: System for optimizing air pressure in a compartment and a method thereof, Applicant: Indian Institute of Technology Ropar, Inventors: Dhiraj K. MAHAJAN, Shubham SINGH, Mayank SRIVASTAV, Sofen Kumar JENA, Status: Filed, Date of Filing: 01-03-2022, Application No. 202211011084, Country of filing: India
5) Patent Title: A Lifecycle indicator for personal protective equipment and perishable objects and a method of configuring thereof, Applicant: Indian Institute of Technology Ropar, Inventors: Dhiraj Kumar MAHAJAN, Dhairya KATARIA, Pooja KULASHRI, Shubham SINGH & Ahmad HUSAIN, Status: Filed, Date of Filing: 15/02/2022, Application No. 202211007861, Country of filing: India
6) Patent Title: An autonomous system for low payload gripper changing mechanism and its method thereof, Applicant: Indian Institute of Technology Ropar, Inventors: Vineet YADAV, Harshal BHAT, Pradeep SAINI, Akshay VERMA, Jaideep AHER, Dhiraj Kumar MAHAJAN, Status: **Granted**, Patent No. 528223, Date of Filing: 05/01/2022, Date of Grant: 15/03/2024, Application No. 202211000649, Country of filing: India

k) Development and/or Transfer of Technology:

To bring novel technologies to market, I have incubated following two startups at TBIF-IIT Ropar as co-founder:

a. Ares Systems Pvt. Ltd., a startup incubated at IIT Ropar, that is working on developing novel green hydrogen generation systems based on membrane-less electrolyser.
b. Bodyloop Labs Pvt. Ltd., a startup incubated at IIT Ropar, that is working on developing novel biomedical devices for continuous monitoring of health biomarkers.

l) Institute Level Administrative Assignments:

a. Department Level Administrative Assignments:

i. Department Representative for Academic Council for Research & Post Graduate Studies (ACRPGS) from April 2020-January 2023**.**

b. Service to Institute Community:

i. Head, Training & Placement Cell, Career Development & Corporate Relations Centre, IIT Ropar from Apr'17-Jul'21. Brought several reforms in the functioning of T&P Cell. Played a key role in establishing Career Development & Corporate Relation Centre (CDCRC) at IIT Ropar and starting a B.Tech program with an Additional Internship as well as Joint Master's Thesis program for M.Tech students.
ii. Chairperson, Career Development & Corporate Relations Centre, IIT Ropar from May'23-March'24.
iii. Organizing Team Member for G20 event organized by IIT Ropar in Amritsar, March 2023.
iv. Organizing Team Member for SAE-BAJA 2018 at IIT Ropar, Jan' 17-Mar'18**.**
v. Faculty In-charge, Board of Cultural Activities (BOCA), IIT Ropar, Aug'14 - Jun'15**.**
vi. Established an online teaching feedback mechanism for IIT Ropar, June'14 - Nov'14**.**

m) Extension Activities / Honors / Prizes /Awards / Peer Recognition:

a. Member of TED27 and TED26 Sectional Committees of the Bureau of Indian Standards.
b. Member of Safety, Cross Cutting Analysis and Integration Subcommittee under the Advisory Group (AG) of the National Green Hydrogen Mission formed by MNRE.
c. Member of CII Taskforce on Green Hydrogen 2024-25, 2023-24, 2022-23.
d. Member of CII National Committee on Future Mobility & Battery Storage for the year 2021-22 and 2022-23.
e. Panel members for revision of IS 16735:2018 `Cylinders for on-Board Storage of Compressed Gaseous Hydrogen and Hydrogen Blends as a Fuel for Automotive Vehicles Specification'.
f. Convenor of Panel 4 in TED 27 SC of BIS to review the standards related to EV Electronics Components & Systems (PHS, BMS, Controllers & Sensors).
g. Best Poster Award at DAE-BRNS Symposium on Multiscale Modeling of Materials and Devices (MMMD-2014) held at Bhabha Atomic Research Centre (BARC), Mumbai from October 30-November 2, 2014.
h. The work done on the Low-Cost Negative Pressure Room during the Covid-I outbreak was appreciated by MHRD minister, Dr Ramesh Pokhriyal Nishank, in his tweet (@DrRPNishank) on April 4th, 2020 (Related News article link)
i. IIT Ropar student team led by me as advisor won the second prize in HY Contest-2019 organized by the Hydrogen Association of India for the report titled "Modeling the Hydrogen Refuelling Station for Heavy Duty Bus Applications".
j. IIT Ropar student team led by me as advisor won the Veziroglu Award in HY Contest-2017 organized by the Hydrogen Association of India for the report titled "An Innovative Fuel Cell Application for Rural India: From Concept to Design".
k. IIT Ropar student team led by me as advisor won the second prize in HY Contest-2015 organized by Hydrogen Association of India for the report titled "Hydrogen Refueling Dispensing Station Model".

l. Conducted GIAN course naming "Applied Fatigue and Fracture Mechanics" with Course Area: Mechanical Sciences & Infrastructure by Foreign Faculty: Richard Pettit from United States of America from the 16-05-2016 to 21-05-2016.

m. I was part of organizing team of conference "Advances in Robotics" organized at IIT Ropar from July 5-8, 2023.

n. An assessment report on the achievement of DLI#4 (Share of participating institutes in the Focus States that train final-year engineering students to take exit examination (e.g. GATE, employability skill test, campus placement test, etc.)) submitted to the National Project Implementation Unit (NPIU) for evaluation of The Technical Education Quality Improvement Programme Phase III (TEQIP III) project undertaken by the Ministry of Human Resource Development, Government of India with assistance from the World Bank.

o. Article published by EVReporter.com on FAQs on Hydrogen Fuel Cell Technology (Link).

p. Article published by Blue Circle Community on Hydrogen Powered EVs: Possibilities Ahead (Link).

q. Coordinator of AWaDH (Agriculture and Water Technology Hub, IIT Ropar) Internship Carnival in which we trained 100 students from all over India (online mode) from May21-August'21 (80+ patent applications submitted by interns based on their 8-week work in this internship carnival).

r. Coordinator, National Resource Centre for Manufacturing at IIT Ropar from Aug'18-Jul'19 to develop a 20-hour MOOC on Manufacturing. This course is floated on the Swayam Platform by GoI and includes extensive inputs from thought leaders from Industry and Academia.

s. Coordinator. AIDOTHON-2022 and AIDOTHON-2023, a summer internship program for S.T.E.M and Medical Sciences students conducted in collaboration with GnSkD Foundation (A Not-for-Profit Company registered with the Ministry of Corporate Affairs).

t. Coordinator of Energy Mentors (USA)-IIT Ropar online summer internship program for 2023 (Links to read interns testimonials: Link 1, Link 2)and 2024 editions. This is an international internship program in which 90 students participated in 2023 edition and 50 students participated in 2024 edition.

n) PhD Supervision

S.No.	Student Name	Category (Fulltime/Part-time/ERP.. etc.)	Thesis Title	Completed or In Progress	Co-Supervisors	Date of Thesis Defended
1	Dr. Rajwinder Singh	Fulltime	Investigation into the Short Crack Nucleation and Propagation in Metals under Monotonic and Cyclic Loadin	Completed	-	October 30, 2019
2	Dr. Rakesh Kumar	Fulltime	Micromechanical Modeling of Hydrogen assisted Crack Initiation in Metals un-	Completed	-	September 26, 2020

			der Monotonic and Cyclic Loading			
3	Dr. Harupjit Singh	Fulltime	Chemosensor Devices for Detection and Quantication of Analytes Using Mul- tivariate Analysis and Machine Learning-Based Approaches	Completed	Prof. Narinder Singh	7th March, 2022
4	Dr. Navneet Singh	Fulltime	Investigations on Cavitation Erosion of High-velocity Oxy-fuel (HVOF)-Sprayed Nickel-based Cermet Coatings on Monel K-500 Alloy	Completed	Prof. Harpreet Singh	20th June 2022
5	Dr. Aman Arora	Fulltime	Role of metallic microstructure on hydrogen-assisted crack initiation under monotonic and cyclic loading	Completed	Prof. Harpreet Singh	6th July, 2022
6	Dr. Tushita Rohilla	Fulltime	Data-driven and Simulation-assisted Synthesis of Hydrocarbon Polymer Electrolyte Membranes	Completed	-	28th November, 2023
7	Dr. Vishal Singh	Fulltime	Micro-mechanical Analysis of Hydrogen Assisted Damage in Metallic Microstructures	Completed	-	16th January 2024
8	Mr. Mukesh Kumar	Fulltime	Design Aspect of a Failure Resistant 70 MPA Type IV Composite Overwrapped Pressure Vessel For Hydrogen Storage	In Progress	-	

9	Mr. Dharmendra Kumar Tyagi	Fulltime	On the Development of Bioresorbable Cardiovascular Using Micro-injection Molding Process	In Progress	-	
10	Mr. Maninder Jeet Singh	Fulltime	Role of Plasticity on Improved Kinetics of Hydrogen Storage in Metal Hydrides	In Progress	Dr. Khushboo Rakha	
11	Mr. Akhilesh Kumar	Part-time	Design optimization of High-Power Density PEM Fuel Cells*	In Progress		
12	Mr. Ajaya Jena	Fulltime	Design optimization of High-Pressure PEM Electrolyser*	In Progress		

*Thesis proposal seminar due