

A SHORT BIO-DATA

DR. K. P. Ajit

Associate Professor, Department of Mechanical Engineering,
Indian Institute of Technology (ISM) Dhanbad

PROFILE

“ My name is DR. K.P.Ajit. I'm presently working as an Associate Professor in the Department of Mechanical Engineering, Indian Institute of Technology (ISM) Dhanbad. My expertise focuses to Fatigue, Fracture, Failure Analysis and Mechanical Behaviour of materials. Nevertheless, my uttermost passion is teaching and exchanging thoughts with my students. ”

PERSONAL DETAILS

Name: K. P. Ajit

Gender: Male

Date of Birth: 16th Sep. 1984

ORCID ID: [0000-0003-0877-7407](https://orcid.org/0000-0003-0877-7407)

Web of Sc. Researcher ID: AAG-4462-2019

ADDRESS: Department of Mechanical Engineering, Indian Institute of Technology (ISM) Dhanbad, Jharkhand, India, Pin-826004

PHONE: 03262235877 (Office), +91 9471191850(Mobile)

EMAIL: ajitkp@iitism.ac.in, ajit160984@gmail.com

WEBSITE: https://www.iitism.ac.in/current_faculty_details

ACADEMIC QUALIFICATION

2012 - 2017

○ DOCTOR OF PHILOSOPHY

Department of Mechanical Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad

Thesis Title: Ductile and Fatigue Behaviour Characterization of Steels through Continuum Damage Mechanics – An Experimental Exploration

2008 - 2010

○ MASTER OF TECHNOLOGY

1st Class, CGPA: 9.44

NIT Jamshedpur, Jharkhand, India

2003 - 2007

○ BACHELOR OF

1st Class, Percentage: 72.4 %

University of Pune, Maharashtra, India

PUBLICATIONS

- International SCI Journals - 11
- International Conferences – 07
- National Conferences/Symposium – 02
- Book Chapters – 02

PROJECTS UNDERTAKEN

- Sep, 2022 - Ongoing ○ Development of Numerical algorithm and CDM Model for Fatigue life estimation of Hydraulic cylinder under various loading conditions
: Funded by Ekin Techprudent Pvt. Ltd
- Jan, 2017 - Jul, 2017 ○ Ratcheting Fatigue Behaviour of Indian Rail Steel
: Funded by TEQIP - III

EXPERIENCE

- Aug, 2023 - Now ○ **ASSOCIATE PROFESSOR**
Department of Mechanical Engineering, Indian Institute of Technology (ISM) Dhanbad, India
- Jan, 2012 - Aug, 2023 ○ **ASSISTANT PROFESSOR**
Department of Mechanical Engineering, Indian Institute of Technology (ISM) Dhanbad, India

**Associate Professor**

Department of Mechanical Engineering
Indian Institute of Technology (Indian School of
Mines), Dhanbad, Jharkhand, India, Pin- 826 004

Phone +91-326-2235877

+91-9471191850

E-mail: ajit160984@gmail.com
ajitkp@iitism.ac.in

Personal Information

1. Name : Dr. K. Priya Ajit
2. Date of Birth: 16th September 1984
3. Academic Qualification:

Sl. No	Degree Obtained	Year of Passing	Discipline	Institution
1.	Ph. D.	2017	Mechanical Engineering (based on the thesis entitled “Ductile and Fatigue Behaviour Characterization of Steels Through Continuum Damage Mechanics – An Experimental Exploration”)	Indian Institute of Technology (Indian School of Mines), Dhanbad)
2.	Master of Technology	2010	Mechanical Engineering	NIT Jamshedpur, Jharkhand
3.	Bachelor of Engineering	2007	Mechanical Engineering	University of Pune, Maharashtra

4. Total Experience Details:

Sl No.	Organisation	Designation	Pay Scale (PB & AGP)	From (Date)	To (Date)
1.	CSIR-NML, Jamshedpur	Project Assistant -II	Rs 14000.00/-	10/08/2011	28/11/2011
2.	Indian Institute of Technology (ISM) Dhanbad (formerly: Indian School of Mines, Dhanbad)	Assistant Professor	PB: Rs. 15600-39100/- AGP: Rs. 6000/-	06/01/2012	13/09/2017
			PB: Rs. 15600-39100/- AGP: Rs. 8000/-	14/09/2017	18/10/2022
			PB: 13A1	19/10/2022	08/08/2023
		Associate Professor	PB: 13A2	09/08/2023	Continuing

5. Courses taught: Design of Machine Elements, Advance Design of Machine Elements, Mining Machinery Design, Material Science, Bulk Material Handling Equipment, Mineral Processing Equipment, Engineering Mechanics, Engineering Graphics, Manufacturing Technology, Diagnostic Maintenance and Condition Monitoring, Mining Machinery
6. Post Graduate Projects supervision:

Sl No.	Completed	Ongoing	Admission No.	Guide/Co-Guide
1.	Abhinav Gautam		2012MT0124	Guide (sole guidance)
2.	Suman Bharti		2012MT0109	Guide (sole guidance)
3.	Naveen Kumar		2012MT007	Guide (sole guidance)
4.	Shashi Bhusan Kumar		2013MT0120	Guide (sole guidance)
5.	Mukesh Kumar		2013MT0011	Guide (sole guidance)
6.	Saurabh Dwivedi		14MT000350	Guide (sole guidance)

7.	Saquib Alam		15MT000130	Guide (sole guidance)
8.	LavuSri Chandra Shekhar		15MT000526	Guide (sole guidance)
9.	Rahul Kumar		16MT001386	Guide (sole guidance)
10.	Brahmdev Kushwaha		17MT002237	Guide (sole guidance)
11.	Vikash Kumar		17MT001700	Guide (sole guidance)
12.	Suraj Kumar Das		17MT002201	Guide (sole guidance)
13.	Kshitish Arya		18MT0252	Guide (sole guidance)
14.	Muhammed Safvan. C		18MT0522	Guide (sole guidance)
15.	Zeeshan Wasi		18MT0090	Guide (sole guidance)
16.	Nirman Tiwari		19MT0249	Guide (sole guidance)
17.	ASHISH PAL		20MT0091	Guide (sole guidance)
18.		Prashant Kumar	21MT0284	Guide (sole guidance)
19.		Shivam Kumar	21MT0389	Guide (sole guidance)

7. Ph. D. Supervision (Completed/ On-going):

Sl No.	Name of Candidate	Registration No. with date	Status of work done	Sole or Joint	In case of joint guide, Name of Principal guide & Co-guide
1.	Raj Kumar Yadav	2014DR0038; 31/01/2014	Completed (08.08.2022)	Sole	
2.	Prahlad Kumar	17DR000661; 27/12/2017	Ongoing	Sole	
3.	Alok Kumar	20DR0010; 31/08/2020	Ongoing	Sole	
4.	Prabhakar Kumar	21DR0126; 12/08/2021	Ongoing	Sole	
5.	Amit Kumar	23DR0014; 14/07/2023	Ongoing	Sole	

8. Details of Research work and funding from external agencies:

Sl. No.	Name of all PI/Co-PI etc.	Role	Sponsoring Authority	Topic/ Field	Sanctioned Amount (Rs.)
1.	K. P. Ajit	PI	Ekin Techprudent Pvt. Ltd; Project no: ETPL/2022-2023/918/MECH	Development of Numerical algorithm and CDM Model for Fatigue life estimation of Hydraulic cylinder under various loading conditions	2,97,950.00/- (Ongoing)
3.	K. P. Ajit	PI	TEQIP – III	Ratcheting Fatigue Behaviour of Indian Rail Steel	1,99,600/- (completed)

9. Number and Details of research papers published in SCI/SSCI/SSCIE Journals:

Sl. No	Authors	Title of paper	Journal	Volume/DOI	Page	Indexed in (SCI/SSCI/SCIE/SCOPUS etc.)
1.	Prahlad Kumar , K. Priya Ajit , Jayant Varun	Fabrication and failure characteristics of asymmetric balsa-core based fibre composite sandwich beams under 3-point bending test	Heliyon	Volume 10, Issue 5, 2024 DOI: https://doi.org/10.1016/j.heliyon.2024.e26502		SCIE Q2
2.	Sita Ram Modi, K. Priya Ajit , Kailash Jha	Numerical and Experimental Crack Analysis of Annealed TC4 ELI Alloy in the Room and Body Fluid Environment	Arabian Journal for Science and Engineering	Volume: awaited, 2023, DOI: https://doi.org/10.1007/s13369-023-08476-3		SCIE Q2
3.	R.K.Yadav, K.P. Ajit	A new stress-based model to predict the fatigue life of 880-grade pearlitic rail steel under uniaxial ratcheting conditions	International Journal of Fatigue	Vol. 171, June 2023, DOI: https://doi.org/10.1016/j.ijfatigue.2023.107588	107588	SCIE Q1
4.	Abhinav Gautam, R. K. Yadav, K.P. Ajit	A review on CDM based ductile damage based models and its application	Transactions of the Indian Institute of Metals	Vol.76, May 2023 DOI: https://doi.org/10.1007/s12666-022-02790-4	1141–1154	SCIE Q3
5.	VK Rajak, S Gautam, K P Ajit , R Kiran, A Madhumaya	Rheological Property Measurement and Application of Formate-Based Drilling Fluids at Elevated Temperatures: A Review	MAPAN	Vol. 37 , 2022 DOI: https://doi.org/10.1007/s12647-022-00546-5	665–681	SCIE Q4
6.	RK Yadav, K.P. Ajit	A Comparative Study of the Various Mean Stress-Based Fatigue Life Prediction Models for 880-Grade Indian Rail Steel in Presence of Ratcheting Phenomenon	Transactions of the Indian Institute of Metals	Vol. 75, No. 2. (2022) DOI: https://doi.org/10.1007/s12666-021-02452-x	577-588	SCIE Q3

7.	A Gautam, K. P Ajit , PK Sarkar	A nonlinear CDM based damage growth law for ductile materials	Materials Research Express	Vol.5, No.2 (2018) DOI: https://iopscience.iop.org/article/10.1088/2053-1591/aaa9d0	026518	SCIE Q3
8.	Bipin Kumar, Vinayak Ranjan, Mohammad Sikandar Azam, K. Priya Ajit	A Comparison of Vibroacoustic Response of Isotropic Plate with Attached Discrete Patches and Point Masses Having Different Thickness Variation with Different Taper Ratios	Shock and Vibration	Volume 2016, Article ID 8431431 DOI 10.1155/2016/8431431	1-12	SCIE Q3
9.	Bipin Kumar, Vinayak Ranjan, Mohammad Sikandar Azam, K. Priya Ajit , K. P. Ajit , Abhinav Gautam, P. K. Sarkar	Acoustic response of clamped isotropic plate with discrete patches and point masses having different thickness variation	Journal of Vibroengineering	Vol 18 (2016)4; DOI: https://doi.org/10.21595/jve.2016.16620	2587-2600	SCIE (at the time of publication in 2016) Q4
10.	K. P. Ajit , Abhinav Gautam, P. K. Sarkar	Ductile Behaviour Characterization of Low Carbon Steel: A CDM Approach	Strojniški vestnik – Journal of Mechanical Engineering	Vol. 62 (2016) 5; DOI:10.5545/sv-jme.2015.3200	299-306	SCIE Q4
11.	K. P. Ajit , Abhinav Gautam, P. K. Sarkar	Ductile fracture behavior of low carbon high strength steel using continuum damage mechanics	International Journal of Materials Research	106 (2015) 9; 2015 DOI: 10.3139/146.111271	1010 – 1013	SCIE Q3

17. Consultancy work details (Completed/Ongoing):

Sl No	Name of PI/Co-PI etc.	Sponsoring Authority	Date of Sanction & Duration	Total value (excluding taxes)	Amount Released (In RS.)	Completed /ongoing
1.	Prof. K. Dasgupta (CI) Dr. K. P. Ajit (CO-CI) (CONS/3612/2017-18)	Coal India Limited	08/05/2017 to 09/06/2017	28,99,227.00/-	28,99,227.00/-	Completed
2.	Dr. K. P. Ajit (CI) Project No: TEST/6062/2021-22	M/s NJS Engineers India Pvt. Ltd.	11/06/2021 3 months	1, 88,000/-	1, 88,000/-	Completed

3.	Dr. K. P. Ajit (CI) Project No. : TEST/7048/2022-23	M/s Superon Schweissttechnik India Ltd.	12/12/2022 2 months	92, 040.00	92, 040.00	Completed
----	---	---	------------------------	------------	------------	-----------

10. Details of book chapters published:

Sl. No.	Title of the Chapter	Title of books	Year of publication	Name of publisher
1.	Failure Analysis of Alloy Steel Connecting Rod	Recent Advances in Mechanical Engineering (A part of Lecture Notes in Mechanical Engineering)	2021	Springer, Singapore

11. Reviewers of the following international journals

▪ Journal of Process Mechanical Engineering ▪ MAPAN Journal of Metrology Society of India
--

12. Details of organisation of national/international seminars:

Sl No.	Organised/Participated	Duration	Details
1.	Member of the organizing committee	22-23 Dec, 2022	International Conference “ Industrial Problem on Machine and Mechanisms, IPRoMM-22”
2.	Member of the organizing committee	9-10 Dec., 2018	3 rd National Conference on Mining Equipment: New Technologies, Challenges & Applications (MENTCA-18)
3.	Member of the organizing committee	9-10 Oct., 2015	2 nd National Conference on Mining Equipment: New Technologies, Challenges & Applications (MENTCA-15)
4.	Member of the organizing committee	19-20 Dec. 2014	National Conference on Advances in Thermal Engineering (AITE2014)

13. Details of participation in Institute level activities:

Sl. No.	Name of the Positions hold	Duration		Years of Experience
		From	To	
1.	Warden	01.07.2022	Continuing	2 years 7 months
2.	Faculty In-charge of UTM Laboratory in CRF	22.07.2019	Continuing	4 years 7 months
3.	Departmental Coordinator, Time-Table Committee	01-07-2017	15-03-2021	3 years 10 months
4.	Member, Concetto (2017), IIT (ISM), Dhanbad	09.08.2017	15.12.2017	4 Months approx.
5.	Institute Representative JEE Advance 2020	26.09.2020	27.09.2020	Not Applicable
6.	Institute Representative JEE Advance 2021	02.10.2021	03.10.2021	Not Applicable
7.	Institute Representative JEE Advance 2022	27.08.2022	28.10.2022	Not Applicable
8.	Member, BASANT & III (2018, 2019, 2020,23)	NA	NA	Not Applicable
9.	Member, Inter IIT Staff Sports Meet 2017 at IIT Chennai	25.12.2017	31.12.2017	Not Applicable
10.	Election officer to conduct election of Student Gymkhana for the academic year 2023-24	29.03.2023	02.04.2023	Not Applicable

14. Details of participation in Departmental level activities:

Sl. No.	Name of the Positions hold	Duration		Years of Experience
		From	To	
1.	SECRETARY (DAC)	01-05-2017	15-10-2019	2 years 5 months
2.	Faculty –In-Charge Department Advance Research Lab	01-08-2021	Continuing	1 years 8 months
3.	Faculty –In-Charge Department HEMM Lab	01-07-2016	30-07-2021	5 years
4.	Member, DPGC	20-10-2022	Continuing	1 years 4 months
5.	FACULTY-IN-CHARGE OF 2ND YEAR, B. TECH	01-07-2014	31-03-2017	2 years 9 months

15. Details of participation in events organized by other institutes:

Sl. No.	Name of the activity	Place	Date(s)
1.	Invited talk in the Short term course on “Metal and Alloys for Defence Applications” organized at IIT BHU (March 02-06, 2023).	IIT BHU	5 th March 2023
2.	Expert Lecturer on ‘Damage Behavior of Dual Phase Steels in Large Plastic Deformation’ in Five-days Online Short Term Course “Mechatronics, Instrumentation, Intelligent and Bio-Inspired Materials (IIBM-2o21 “(10-14 February 2021)	IIIT Bhagalpur	13 th Feb. 2022
3.	Guest lecture on the topic “Engineering Failure Analysis” in the workshop, Understanding Metallurgy of Steel For Its Effective Utilisation (UMSU-2018) [27.10.2018 to 28.10.2018], organized by BIT Sindri (Dhanbad).	BIT Sindri	28 th Oct. 2018
4.	External examiner for M. Tech, Viva-voce examination at NIT Jamshedpur.	NIT Jamshedpur	12 th June 2018
5.	External examiner for B. Tech, Viva-voce examination at BIT Sindri	BIT Sindri (Dhanbad).	15 March 2019
6.	Subject expert for Jharkhand Public Service Commission (Ranchi) Assistant engineers Mains Exam between 27th Jan to 31st Jan 2022	JPSC, Ranchi	27 th Jan to 31 st Jan 2022

16. Details of contribution towards Lab Development:-

- Developed the UTM Lab for the CRF
- Developed Creep-Fatigue Interaction lab for the CRF
- Developed low temperature (up to -150 °C) fracture toughness testing facility in UTM lab for the CRF
- Developed Creep- Fatigue Interaction test up (up to 1100 °C) Lab for the CRF

17. Details of contribution towards Students Welfare:-

- Coordinator of the BASANT & Industry Institute Interaction(III), 23 Cultural Committee
- Departmental Faculty Co-coordinator CONCETTO -17
- Election officer to conduct election of Student Gymkhana for the academic year 2023-24

18. Any other significant achievement:

-
- Warden (Jasper Hostel)
 - Acted as a Micro Observer in the Assembly Elections 2014 & 2019
 - Acted as a Micro Observer in the Parliament Elections 2014 & 2019
 - Procured high-valued UTM and Creep-fatigue interaction test set-up equipment for the CRF and the Department
-

19. Details of extra-curricular activities:

- Member, Inter IIT staff Sports Meet 2017 at IIT Chennai
 - Member of departmental scrutiny committee for M. Tech and JRF admission Process
-



Signature
(26/02/2024)