

IPS ACADEMY

INSTITUTE OF ENGINEERING & SCIENCE

Indore (M.P.)



AUGC Autonomous Institute
Affiliated to



Rajiv Gandhi Proudhyogiki Vishwavidyalaya Bhopal

Annual Report (R&D)

2025-26

A. About Research and Development (R & D) Cell



Vision

To be the fountainhead of novel ideas & innovations in science & technology & persist to be a foundation of pride for all Indians.

Mission

To develop and expand innovative research programs that align well with institutional mission and strategic plan, address important national and global needs, and through technology transfer and commercialization



Objectives

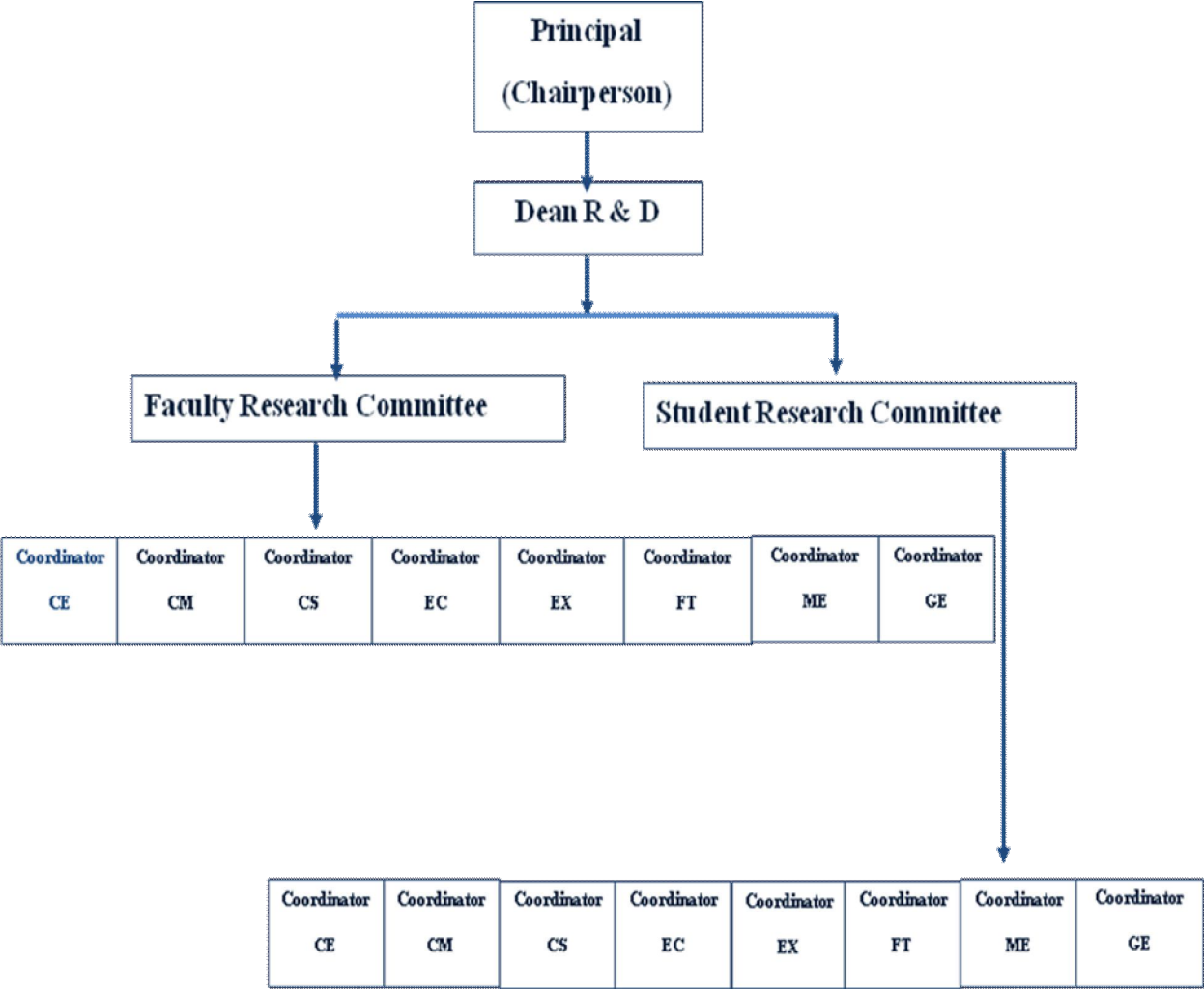
- R&D Cell aims to foster research culture in the College by promoting research in newly looming and challenging frontier areas of Engineering, Technology and Science.
- It encourages the students and faculty to undertake the research in multidisciplinary fields.
- This fortifies the general research capability of budding technocrats by way of participating in conferences, seminars, workshops, project competition, etc
- To encourage young Engineers to take up challenging R&D activities.
- To encourage patenting facilities to Engineers in the country for Indian and foreign patents on a sustained basis.



Functions of R & D

- Identification of thrust areas of research in each department.
- Advise and encourage the faculty to carry out research in-house and in collaboration with other organizations.
- Visit various departments and meet the faculty to encourage and motivate them to undertake research projects and to scrutinize the proposals before submitting to funding agencies.
- Identification of physical and human resources to carry out research.
- Identify the budgetary requirements and resources for funding the research.
- Review the progress of research and offer necessary guidance whenever required.
- Monitor and propose the funding from college budget for promotion of research activities.
- Identify different organizations/ industries to undertake collaborative research on current topics of mutual interest.
- To develop state of art laboratories such microfluidics lab and heavy structure lab.
- To develop earthquake research center in the institute.

Proposed Structure of R & D



Constitution of Research Advisory Committee

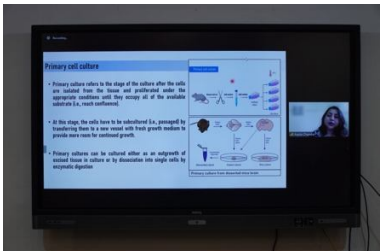
Constitution of Research and Development Cell (RDC)

The constitution of Research & Development Cell (RDC) is as follows:

1. Dr. Archana Keerti Chowdhary, (Principal) Chairperson
2. Dr. Amit Sharma, Professor, Dean, Research Development Cell
3. Dr. Abhinesh Prajapati, Professor, Coordinator
4. Dr. J. Ponomozhi, Professor, Mechanical Engineering, Member
5. Dr. Dharmendra Singh Yadav, Professor, Electronics & Communication Engineering, Member
6. Dr. Sumit Bhatiya, Professor, Fire Technology and Safety Engineering, Member
7. Dr. Devanshi Jagwani, Professor, Civil Engineering, Member
8. Dr. Vaishali Gupta, Associate Professor, Computer Science and Engineering, Member
9. Dr. Kanti Kumar Athankar, Associate Professor, Chemical Engineering, Member
10. Dr. V. G. Sadh, Associate Professor, Humanities, Social Science and Management, Member
11. Dr. Indra Kumar Shah, Associate Professor, Computer Science & Engineering (IoT), Member
12. Dr. Nisha Agrawal, Associate Professor, General Engineering, Member
13. Dr. Mohd Nasim, Assistant Professor, Civil Engineering, Member
14. Mr. Kapil Vyas, Assistant Professor, Computer Science & Information Technology, Member
15. Ms. Vandana Dubey, Assistant Professor, Artificial Intelligence Markup Language, Member
16. Mr. Shubahm kanungo, Assistant Professor, Mechanical Engineering, Member
17. Dr. Shivendra Tiwari, Assistant Professor, General Engineering , Member

The responsibility of the research and development cell (RDC) is to implement & monitor the framed policies which help to the promotion of research activities for the benefit of all.

B. Research Project Received/ Accepted (Ongoing)

Sr. No.	Title of Project	Name of the collaborating agency with contact details	Name of the participant from Institute	Financial Year	Amount	Duration
1	Drug diffusion studies on skin-on-a-chip: Influence of shear stress (Internal Funding 2023)	Collaboration with CNCI – Dr. Arpita Banerjee, Chittaranjan National Cancer Institute 	Dr. J. Ponmozhi	2023 - 2026	Amount from IPSA-IES:28.0 L	3 years

Research Grant Received/ Accepted (Ongoing) (2025-26)

S. No	Title	PI/Co-P	Grant Agency	Date of Sanction	Period where the money was deployed	Amount Sanctioned (Lakhs)
1	Device development for real-time monitoring the microbial contamination in industrial heat exchange fluids for optimum biocide selection	Dr. J. Ponmozhi	AICTE (RPS)	March 26	3Years	22
2	A novel point of care diagnostic device for rapid detection of early stage oral cancer through real-time microbial adhesion pattern from salivary sample	Dr. J Ponmozhi Dr. Archana Keerti Chowdhary Dr. Indra Kumar Shah	ICMR	Feb 2026	1 year	97.38
3	Integrating Traditional Water Wisdom into Sustainable Urban Water Management	Dr. Archana Keerti Chowdhary Mr. Lalitesh Sinha Dr. Devaanshi Jagwani	MoE	March 26	1 Year	0.9
5	PMAY-Gramin	Student intership/research	PMAY, MP Gov.	Aug 2025	2 Months	3.5

Seed Money Granted (2025-26)

S. No.	Title	Dept.	Details of PI and CO-PI	Amount Sanctioned (Rs.)
1	Decorative Tiles Made from Waste and Broken Tiles	CE	PI-Dr. Ashish Nim, Co-PI-Ms. Nitya Sanghavi	189250/-
2	Integrating Traditional Water Wisdom into Sustainable Urban Water Management	CE	PI- Mr. Lalitesh Sinha Co-PI- Dr. Devaanshi Jagwani	235000/-
3	Advancing Structural Health Monitoring: Development of Optimized Self-Sensing Concrete for Resilient	CE	PI- Mr. Vijay Baradiya Co-PI- Mr. Arpit Sethiya Dr. Mohd. Nasim	200000/-
4	Sustainable wastewater treatment and reuse: Electrocoagulation for efficient pollutant removal and water utilization from textile dyeing effluent	CM	PI-Dr. Abhinesh Kumar Prajapati, CO-PI-Dr. Shamal Sen	200000/-
5	Unlocking the Power of Sign & Bridging Silence With AI	CSE	PI-Dr. Vaishali Gupta	220000/-
6	Development of Real-Time Microbial Quantification and Color Detection System via Image Processing	CSE	PI- Dr. Indra Kumar Shah, Co-PI- Dr. J. Ponmozhi	214000/-
7	Internet of Things (IoT) Build PPE's Surveillance Gadget	FT	PI- Dr. Praveen Patel CO-PI- Dr. Aditya Tiwary	156800/-
8	Development and optimization of a multi-material desktop 3D printer for functional prototyping in additive manufacturing	ME	PI-Mr. Ashwini Joshi, Co-PI-Shubham Kanungo, Co-PI- Mr. Mayak Gurjar	133500/-
9	Slurry Based Additive Manufacturing	ME	PI- Dr. Rupendra Singh Tanwar	197900/-
10	Designing Next-Generation Optical Networks for Future Communication Systems	EC	PI- Dr. Dharmendra Singh Yadav	183000/-

C. (i) Research Publication (July2025- June 2026)

S. No	Name of the Author(s)	Department of the Author(s)	Title of the Paper	Name of the Journal	Month and Year of publication	ISSN
1	Dr. Kalyani Tiwari	CSE-DS	A Hybrid Image Processing and Clustering Framework for Unsupervised Crack Detection in Resistance Spot Welds	Advances in Materials Science and Engineering	Jun-26	1687-8434
2	Dr. Kalyani Tiwari	CSE-DS	Review: next-generation metal hydride systems for sustainable hydrogen storage—kinetics, nanostructuring, and intelligent materials discovery	Journal of Materials Science	May-26	Electronic ISSN 1573-4803 Print ISSN 0022-2461
3	Dr. Abhinesh Kumar Prajapati	CM	A Sustainable Approach to Industrial Wastewater Treatment Through Aerated-Assisted Alternating Current–Electrocoagulation Process	Electrochemical Science Advances	May-26	2698-5977
4	Dr. Vaishali Gupta	CSIT	Optimizing intrusion detection using a hybrid CNN LSTM deep learning framework on the NSL KDD dataset	Discover Computing	Apr-26	E-ISSN 2948-2992
5	Dr. Vaishali Gupta	CSIT	CNN-Based Intelligent Intrusion Detection for Secure Routing in IoT-Enabled Wireless Sensor	International Journal of Drug Delivery Technology	1-Apr-26	ISSN: 0975 4415

			Networks			
6	Mr.Pratik Jain	CSIT	Enhancing the Efficiency of IDS through Machine Learning by Providing Authentication	International Journal of Drug Delivery Technology	Apr-26	ISSN: 0975 4415
7	Mr.Pratik Jain	CSIT	Optimizing Intrusion Detection Efficiency through Filtered clusterer, KMean clusterisn and Density-Based Clustering Without Count Attribute	JCHR	Apr-26	ISSN:2251-6719
8	Ms. Harleen Kaur Malhotra	CSIT	Enhancing the Efficiency of IDS through Machine Learning by Providing Authentication	International Journal of Drug Delivery Technology	Apr-26	ISSN: 0975 4415
9	Mr.Pratik Jain	CSIT	Explainable AI-Driven Predictive Maintenance Framework for Industrial Equipment in Industry 4.0 - Enabled Smart Factories	International Journal of Computer Information Systems and Industrial Management Application	2026	2150-7988
10	Dr. Kalyani Tiwary	CSE	The improved tribo-mechanical performance of MWCNT–hBN hybrid reinforced Al nanocomposites	New Carbon Materials	Apr-26	ISSN : 2097-1605, eISSN : 1872-5805
11	Lalitesh Sinha, Dr. Archana Keerti Chowdhary	CE	Genetic Algorithm-Based Optimization of Time and Cost in Bridge Construction: A Case Study	National Academy Science Letters	Feb-26	Electronic ISSN 2250-1754 Print ISSN 0250-541X

12	Dr. Archana Keerti Chowdhary Mr. Lalitesh Sinha, Mr. Praveen Kumar	CE	Tradeoff analysis for a flyover bridge construction using Evolutionary Algorithm	Engineering, Construction and Architectural Management	Feb-26	ISSN: 0969-9988
13	Ms. Khushboo Kachhawa Ms.Pushpa Bansiwala	CSE	An AI-Enhanced Intelligent Attendance management framework:An integrated model for workforce analytics and automated payroll processing	Indian Journal of natural Science(IJONS)	Feb-26	0976-0997
14	Dr. Kanti Kumar Athankar	CM	Explication of Butyric Acid Partitioning with Tri-n-octylamine and Natural Oils in a Biphasic System: Equilibria and Design of an Extraction Column	Journal of Chemical & Engineering Data	Jan-26	0021-9568
15	Dr. Vaishali Gupta	CSE	A Hybrid Stylometric–Transformer Embedding Framework for Robust Authorship Verification Against Generative AI Adversaries	Journal of Theoretical and Applied Information Technology	Jan-26	E-ISSN 1817-3195 / ISSN 1992-8645
16	Mr. Subhash Kumar Mandal Dr. Yogendra Singh Dohare,	EX	Machine learning-based battery life prediction and smart charging optimization for renewable energy storage systems	Future Batteries	Jan-26	ISSN 2950-2640

17	Mr. Hemant Mehar	EX	Computer Applications in Electrical Engineering: Recent Trends, Future Requirements and an Educational Review	Platform: A Journal of Engineering	31-Dec-25	e-ISSN: 26369877
18	Ms. Deepa Vyas	CSE	A Study on Brain Computing Interface	EPJ Web of Conferences	Dec-2025	1201-6275
19	Dr. Arpit Sethia	CE	Experimental analysis of recycled aggregate concrete with partial replacement of natural sand by GGBFS	Indian Journal Of Natural Sciences	Nov-25	0976-0997
20	Dr. Mhod Nasim, Mt. Lalitesh Sinha	CE	Analyzing Piping Resistance in Soil Reinforced with Waste Plastic Slurry and Pellets	Indian Geotechnical Journal (Springer Nature) ESCI	July -25	2277-3347
21	Diwakar Singh, Harish Kumar Dwivedi, Lalitesh Sinha, Tanushree Sinha and Neeraj Mishra	CE	Application of Six Sigma and Quality Control Tools in A Fly-Ash Brick Manufacturing Plant	Indian Journal of Natural Sciences	July-25	0976-0997
22	Harish Kumar Dwivedi, Diwakar Singh, Pallavi Gupta and Parakh Dongre	CE	Improved Strength and Waste Reductivity for Industrial Use: A Sustainable Method for Partially Replacing Fine Aggregates in Concrete with Crushed PVC Plastic	Indian Journal of Natural Sciences	July-25	0976-0997
23	Dr. Abhinesh Kumar Prajapati, Dr. Deepak Sharma	CM	Decolorization of azo dye containing wastewater using combined photocatalytic	International Journal of Chemical Reactor	28-Jul-25	2194-5748

			ozonation and Fe doped TiO2 nanoparticles with RSM based optimization	Engineering		
24	Dr. Kanti Kumar Athankar	CM	Co-pyrolysis of sugarcane bagasse and leather industry tallow: examining kinetics, thermodynamics, and potential synergies	Journal of Thermal Analysis and Calorimetry	Sep-25	1388-6150
25	Ms. Neha yadav	CSE	Implementing a Cloud-Based Security Framework to Automate Healthcare Operations	International journal of research in electronics and computer engineering	Jul-25	2393-9028
26	Mr.Arvind Upadhyay, Dr. Kavita Upadhyaya	CSE	Optimization of Cloud Scheduling Using Q-Learning Hyperheuristic Algorithm	International journal of applied mathematics	25-Aug	1311-`728
27	Dr. Vaishali Gupta, Dr. Kalyani Tiwari, Ms. Namrata Atre, Dr. Angeeta Hirwe, Dr. Indra Kumar Shah	CSIT	Sentimental Analysis for Social Media using Lexicon based Model	Indian Journal of Natural Sciences	Oct-25	0976 – 0997
28	Dr. Vaishali Gupta, Dr. Kalyani Tiwari, Dr. Angeeta Hirwe	CSIT	The Power of NLP: Understanding its Techniques, Tools and Real - World Applications	Indian Journal of Natural Sciences	Oct-25	0976 – 0997

29	Mr. Vijay Choudhary	CSIT	Reprogramming the Tumor Ecosystem via Computational Intelligence-Guided Nanoplatfoms for Targeted Oncological Interventions	Trends in Immunotherapy	Sep-25	2573-5985
30	Mr. Vijay Choudhary	CSIT	Multiclass Plant Leaf Disease Prediction Using Fuzzy Multimodal Feature Extraction	Advances in Technology Innovation	Oct-25	
31	Mr. Yash Parashar, Ms. Ritumbara Chauhan, Dr. Kalyani Tiwari	CSIT	A Fine-tuned residual neural network approach for robust detection of fruit decay	Indian Journal of Natural Sciences	Dec-25	0976 – 0997
32	Dr. Angeeta Hirwe, Dr. Indra Kumar Shah	CSE	Analysis of Cognitive Radio Networks by Co-Operative Spectrum Sensing Technique	Indian Journal of Natural Sciences	Dec-25	0976 – 0997
33	Dr. Pooja Bhatt	EX	Quantifying communication effectiveness of wearable antennas in defense applications	The Journal of Defense Modeling and Simulation (JDMS)	Dec-25	1548-5129
34	Dr. Rupendra Tanwar	ME	Microstructure and High-Temperature Dry Sliding Wear Behavior of WAAM-Manufactured Austenitic Bimetallic Interface.	Journal of Materials Engineering and Performance (JMEP)	Oct-25	1544-1024

35	Ms. Mamta Parmar; Dr. Rupesh Dubey; Mr. Ritesh Gupta	EC	Design 4: 1 Multiplexer Using GDI (90 NM) Technology for Low Power and Compact Area	Scope	Nov-25	1177-5653

(ii) Book Published (July 2025 - June 2026)

S. No.	Name of the Teacher	Title of the Book published	Year of publication	ISBN of the Book/Conference Proceeding	Name of the Publisher
1	Dr.V.G.Sadh	Book: Research Methodology Essentials	March,2026	978-81-999080-1-7	Growth Publication

2	Dr.V.G.Sadh	Book: Resource Management: Principles of People Management	May, 2026	978-81-999080-0-0	Growth Publication
3	Dr. Nisha Agrawal Ms. Astha Kourav Ms. Aakshi Patidar (Book)	Step into Linear Algebra	2025	978-93-48717-11-5	Guru Shishya Publication
4	Ms.Pushpa Bansawal	Mastering Data Structures Through C	2025	978-93-48717-45-0	Guru Shishya Publication
5	Ms.Pushpa Bansawal	Data Ethics Implementing Morality in real world	2025	978-93-48717-71-9	Guru Shishya Publication
6	Ms.Pushpa Bansawal	The Art of C Programming	2025	978-93-48717-60-3	Guru Shishya Publication
7	Ms.Pushpa Bansawal	First Step In DBMS	2025	978-93-48717-32-0	Guru Shishya Publication
8	Ms.Pushpa Bansawal	Advanced Programming with C	2025	978-93-48717-40-5	Guru Shishya Publication
9	Mr.Girish Gogate	Cloud Computing: The Future of IT Infrastructure	2025	978-93-48717-80-	Guru Shishya Publication
10	Mr. Vijay S. Shankul	Safety Engineering & It's Industrial Applications	2025	978-93-48717-56-6	Guru Shishya Publication
11	Dr. Rekha Dhoot	Parenting in the Digital Age	2025	978-93-6095-122-1	Author Press

(iii) Book Chapters Published (July 2025- March 2026)

S .No.	Name of the Faculty	Title of the Book	Title of the book chapters published	Year of publication	ISBN/ISSN number of the proceeding	Name of the publisher
1	Dr. Archana Keerti Chowdhary Dr. Lalitesh Sinha	Latest Advances in Field Monitoring, Instrumentation and Data	Estimation of Rinfall Runoff and Determination of Groundwater by Resistivity Meter: A Case Study	June-2026	IYGEC 2025. Lecture Notes in Civil Engineering, vol 838. https://doi.org/10.1007/978-981-95-7956-3_3 978-981-95-7956-3	Springer, Singapore.
2	Dr. Amit Sharma	Latest Advances in Field Monitoring, Instrumentation and Data	Seismic Performance of Two-Story Confined Masonry Building.	June-2026	IYGEC 2025. Lecture Notes in Civil Engineering, vol 838. https://doi.org/10.1007/978-981-95-7956-3_3 978-981-95-7956-3	Springer, Singapore.
3	Vijay Kumar Baradiya, Dr. Lalitesh Sinha	Advances in Wastewater Research (AWR)	Introduction to Nanomaterials and Industrial Wastewater Treatment	Oct-25	978-981-96-6881-6	Springer Nature

4	Dr. Mohd Nasim & Dr. Harish Kumar Dwivedi	Advances in Wastewater Research (AWR)	Types of Nanomaterials in Wastewater Treatment	Oct-25	978-981-96-6881-6	Springer Nature
5	Dr. Devaanshi Jagwani (Book Chapter)	Advances in Wastewater Research (AWR)	Mechanisms of Nanomaterials in Wastewater Treatment	Oct-25	978-981-96-6881-6	Springer Nature
6	Mr. Lalitesh Sinha	Advances in Wastewater Research (AWR)	Environmental Implications and Safety Considerations of Nanotechnology in Wastewater Treatment	Oct-25	978-981-96-6881-6	Springer Nature
7	Dr. Devaanshi Jagwani (Book Chapter)	Advances in Wastewater Research (AWR)	Conclusion and Future Outlook	Oct-25	978-981-96-6881-6	Springer Nature

D. MoU(s)

Organization with which MoU is signed	Name of Coordinators corporate house	Year of signing MoU	Duration	List the activities under MOU
Moscow Institute of Physics and Technology, Russia	Dr. Vasily Golubev, Professor, Computer Science & Numerical Mathematics Dept., MIPT, Russia	May. 2026	5 Years	Book Chapter Titled “Seismic Performance of Two-Story Confined Masonry Building” published in Latest Advances in Field Monitoring, Instrumentation, and Data-Driven Geotechnical Engineering, Proceedings of the 10th Indian Young Geotechnical Engineers' Conference (IYGEC 2025), Volume V, part of book series, Lecture Notes in Civil Engineering , Page 413- 431, ISBN 978-981-95-7956-3, 23 May 2026. Research Paper Titled “Numerical investigation of the seismic barrier’s efficiency for Rayleigh waves” submitted in 12th International Symposium on Field Monitoring in Geomechanics 2026, IIT Indore, INDIA
Institute of Computer Aided Design, Russain Academy of Science, Russia	Dr. Ilia Nikitin Principal, Institute of Computer Aided Design, Russain Academy of Science, Russia	March. 2026	5 Years	Research Paper Titled “Numerical investigation of the seismic barrier’s efficiency for Rayleigh waves” submitted in 12th International Symposium on Field Monitoring in Geomechanics 2026, IIT Indore, INDIA
School of Science, Xi’an Jiaotong-Liverpool University (XJTLU), People’s Republic of China	Dr. Ankit Garg Associate Professor Department of Health and Environmental Sciences at Xi'an Jiaotong-Liverpool University (XJTLU), China	Jan. 2026	5 Years	Visit of Dr. Ankit Garg and Dr. Akhil Garg to the institute. Deliver expert sessions to faculty members and students and participate in Advisory Board meetings in Civil Engineering and Mechanical Engineering Departments respectively.

E. Collaboration (s)

S. No.	Title of the collaborative activity	Name of the collaborating agency with contact details	Name of the participant	Year of collaboration	Duration	Nature of the activity
1	Centre for Engineering Education Excellence Program: 2026-27	Indian Institute of Technology Indore Prof. Kazi Sabiruddin Domain Coordinator CEEE (D3) Mechanical Engineering Phone: 07316603236 web: www.iiti.ac.in/~skazi	Mr. Vijay Shankul	2026	15-26 June 2026	(CEEE- IIT Indore) Mechanical Aerospace & Energy Engineering
2	Centre for Engineering Education Excellence Program: 2026-27	Indian Institute of Technology Indore Prof. Kazi Sabiruddin Domain Coordinator CEEE (D3) Mechanical Engineering Phone: 07316603236 web: www.iiti.ac.in/~skazi	Mr. Ramjee Singh Prajapati	2026	15-26 June 2026	(CEEE- IIT Indore) Mechanical Aerospace & Energy Engineering
3	Centre for Engineering Education Excellence Program: 2026-27	Indian Institute of Technology Indore Prof. Kazi Sabiruddin Domain Coordinator CEEE (D3) Mechanical Engineering Phone: 07316603236 web: www.iiti.ac.in/~skazi	Mr. Yashwant Buke	2026	15-26 June 2026	(CEEE- IIT Indore) Mechanical Aerospace & Energy Engineering
4	A novel point of care diagnostic device for rapid detection of early	IIT Indore	Dr. S. Dhinakaran Dr. J ponmozhi	2025-26	1 Year	Research Work

	stage oral cancer through real-time microbial adhesion pattern from salivary sample					
5	Research on Seismic Performance of existing structures,	MIPT Russia, Russian Academy of Science, Moscow and Shri GSITS, Indore,	Dr. Rakesh Kumar Khare Dr. Amit Sharma Dr. Vasily Golubeva	2025-26	1Year	Paper published in proceedings of 10 th IYGEC and book chapter (Springer)
6	Performance assessment of Masonry structure with rigid diaphragm using bi-axial shake table.	RRCAT Indore	Vivek Pathak (M.Tech Student) Er. Govind Parchani (Co-Supervisor, RRCAT, Indore) Dr. Amit Sharma (Supervisor, IPSA, IES)	2024-26	2Year	M.Tech Thesis Guidance by Er. Govind Parchani from RRCAT, Indore
7	Guidance for Research Project	BITS Dubai Dubai International Academic City P.O. Box: 345055, Dubai, UAE	Ms. Suhani Katariya	Oct-25	1 year	M.Tech Thesis Guidance

H. Patent (s)

S. No.	Patents / Copyright Approved	Name	Year	Status
1	Mr. PurushottamYogirajJadhav Dr. Ashish Nim Dr. Archana KeertiChowdhary Dr. Keerti K. Chowdhary	OPTIMIZED SHEAR KEY FOR A CANTILEVER RETAINING WALL	IN202621029143 A1(Published) Publication Date: 15-05-2026 Journal No: 20/2026	Patent Published
2	Mr. Diwakar Singh	AI BASED VEHICLE ANTI-COLLISION DEVICE	6519806 (Granted) 24 April 2026	UK Design Granted
3	Wearable Voice Activated Mantra Recognition & Counting System” (202621031065)	Shubham Kanungo	2026	Patent Filed
4	“Artificial Intelligence Techniques for Exergy Analysis of Refrigeration Systems: From Conventional Vapor Compression Refrigeration to Cascaded VCR– VAR Hybrid Systems” (LD-10202/2026-CO)	Shubham Kanungo	2026	Copyright Filed
5	A Recursive Trident-Inspired Multi-Stage Deployable Modular Structure” (202621034203)	Shubham Kanungo	2026	Patent Filed
6	Footwear. (495448-001)	Shubham Kanungo	2026	Design Filed
7	Refrig Exergy AI Suite: Intelligent Exergy Analysis Tool for VAR-VCR Refrigeration Systems (12845/2026-CO)	Shubham Kanungo	2026	Copyright Filed
8	AI-Based Elder Care Robot (483757-001)	Pratik Jain	2025	Design Granted (14-12-2026)
9	Evacuation Lighting Controlling Automatic Device (480912-001)	Dr. Praveen Patel Dr. Manish Dubey Ms. Shalini Dwivedi	2025	Design Accepted and Published

10	Generative AI desktop computer appliances & Design number. (6488228)	Mr. Pratik Jain Mrs. Pushpa Sansiwal	2025	UK Design Granted (04-12-2025)
11	AI Network Security Hub & Design number (6488753)	Mr. Pratik Jain	2025	UK Design Granted (04-12-2025)
12	Device for Climate Responsive Hydrological Modeling in Mountainous River Basin. (6457768)	Dr. Archana Keerti Chowdhary Dr. Harish Kumar Dwivedi Mr. Lalitesh Sinha Dr. Devaanshi Jagwani	2025	UK Design Granted (21-7-2025)
13	Nutrient Removal Device for Fecal Sludge Management. (453840001)	Mr. Lalitesh Sinha Dr. Devaanshi Jagwani	2025	Design Granted (18-7-25)

I. R & D Events

(a) “IPR for Engineering & Technology Innovations”

1. Introduction

The R & D Cell of IPS Academy, Institute of Engineering & Science, Indore organized an interactive session on **“IPR for Engineering & Technology Innovations”** on 9th January 2026. The session aimed to enhance awareness and understanding of Intellectual Property Rights (IPR) among faculty members and students, emphasizing its importance in engineering and technological advancements.

2. Objective of the Session

The key objectives of the session were:

- To provide fundamental knowledge of IPR and patents.
- To guide participants in identifying patentable ideas from research and consultancy work.
- To highlight the significance of IPR in funded projects, publications, and institutional growth.
- To encourage faculty and students to foster innovation and develop a patent-oriented mindset.

3. Resource Person

The session was conducted by **Mr. Vikas Asawat**, a **Registered Patent & Trade Mark Attorney**, who brought valuable expertise and practical insights into the domain of intellectual property.

4. Key Highlights of the Session

The session covered the following major topics:

- **Basics of IPR and Patents**

Participants were introduced to different types of intellectual property and their relevance in engineering disciplines.

- **Identification of Patentable Ideas**

The speaker explained how research outcomes and consultancy projects can be transformed into patentable innovations.

- **Importance of IPR in Research and Development**

Emphasis was placed on the role of IPR in enhancing the value of funded projects, research publications, and institutional reputation.

- **Role of Faculty in Innovation Promotion**

Faculty members were encouraged to mentor students in innovation, patent filing, and startup initiatives.

5. Participation

The session witnessed active participation from:

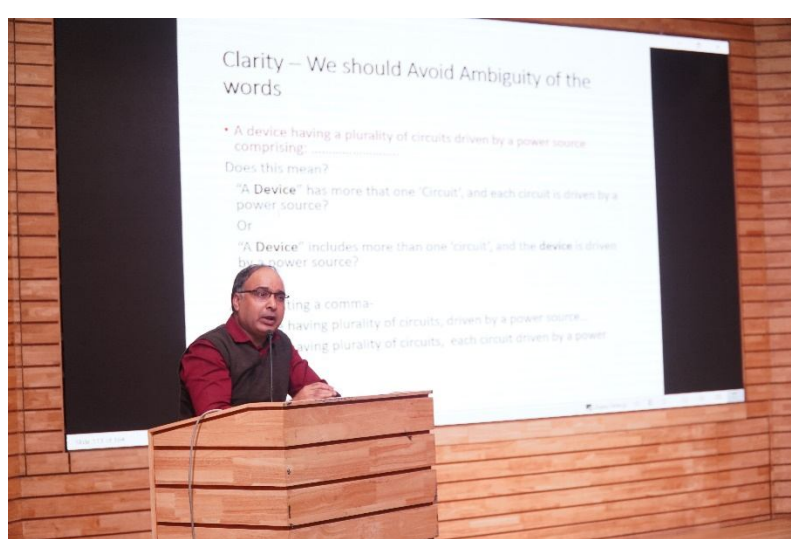
- Faculty members.
- Undergraduate and postgraduate students.
- The audience showed keen interest and engaged actively through questions and discussions.

6. Outcomes of the Session

- Increased awareness about intellectual property rights and patent filing procedures.
- Motivation among faculty and students to convert innovative ideas into patents.
- Enhanced understanding of the role of IPR in academic and industrial growth.
- Encouragement towards startup culture and innovation-driven projects.

7. Conclusion

The session proved to be highly informative and beneficial for all attendees. It successfully created awareness about the importance of IPR in engineering and technology. Such initiatives by the R & D Cell significantly contribute to building a strong culture of innovation, research, and entrepreneurship within the institution.



(b) Expert Talk on “Critical Thinking Meets Technical Writing: Advanced Research Paper Methods for Engineers” Held at IPS Academy, Institute of Engineering and Science

The Civil Engineering Department, IPS Academy, Institute of Engineering and Science, in association with the Indian Geotechnical Society, Indore Chapter, organized an Expert Talk on **“Critical Thinking Meets Technical Writing: Advanced Research Paper Methods for Engineers”** on 13th September 2025 at the Placement Auditorium.

The talk was delivered by **Prof. Arif Ali Baig Moghal (Professor, NIT Warangal)**, who shared in-depth insights on research methodology, structuring papers, originality, plagiarism ethics, manuscript preparation, journal selection, and addressing reviewer feedback. He emphasized how critical thinking, combined with technical writing skills, can significantly enhance the quality of research papers and their acceptance in reputed journals.

The program was conducted in the august presence of Dr. Arachna Keerti Chowdhary (Principal, IPS Academy, Institute of Engineering and Science), Dr. Keerti Chowdhary (Dean, Student Welfare, IPS Academy, Institute of Engineering and Science), Dr. Amit Sharma (Head, Department of Civil Engineering, IPS Academy, Institute of Engineering and Science), faculty members, R & D Cell members and M.Tech students of the Civil Engineering Department.

The session was highly interactive and engaging, equipping participants with advanced research paper writing methods tailored for engineers. The event concluded with an active Q&A session, followed by a Vote of Thanks delivered by Dr. Amit Sharma (Head, Department of Civil Engineering, IPS Academy, Institute of Engineering and Science), who expressed gratitude to the distinguished speaker, dignitaries, faculty members, and students for their participation.



J. Special lecture(s)

Sr. NO.	Title	Details of Experts	Date of lecture Delivered
1	"From idea to grant: Telling your research story for successful funding"	Dr. J Ponmozhi, IPS Academy, IES	17/12/2025

F. Ph.D Awarded

- (1) Dr. Arpit Sethiya (CE)
- (2) Dr. Laliesh Sinha (CE)
- (3) Dr. Vikas Vishwakarma (CM)
- (4) Dr. Nitesh Parmar (CM)

Proposals Submitted

S. No	Funding Agency	Proposal Type	Title	PI/Coordinator	CO-PI/ Co-coordinator	Dept.	Nature of proposals
1	IKS , MoE	IKS –Research Proposal	“Renewable to Sustainable - Smart Approaches in Construction”	Dr. Archana Keerti Chowdhary	Dr. Harish Kumar Dwivedi Ms. Tanushree Sinha	CE	Research Proposal
2	IKS , MoE	IKS –Research Proposal	Integrating Indian knowledge systems with smart water purification for sustainable urban water supply	Dr. Devaanshi Jagwani	Mr. Lalitesh Sinha	CE	Research Proposal
3	IKS , MoE	IKS –Research Proposal	Sustainable Low-Carbon Walling Materials Inspired by Indian Knowledge Systems and Industrial By-Products	Dr. Ashish Nim,	Dr. Mohd Nasim,	CE	Research Proposal
4	IKS , MoE	IKS –Research Proposal	Automatic summarization of Indian language news articles using transformers,	Dr. Vaishali Gupta	Dr. Kalyani Tiwari	CSE	Research Proposal
5	IKS , MoE	IKS –Research Proposal	Hybridization of Traditional Indian Adsorption Techniques with Modern River Treatment Practices for Kanh River Eco-Restoration	Dr. Kanti Kumar Athankar	Dr. Shamal Sen	CM	Research Proposal
6	IKS , MoE	IKS –Research Proposal	Studies on the Bhagavad Gita and Its Adoption in Modern Management: An Indian Knowledge Systems (IKS) Perspective	Dr. Amit Chandak	Dr. Rupendra S Tanwar	ME	Research Proposal

7	SERB	ANRF-AI MAHA	AI Driven Ground Water depletion and recharge for casting using integrated remote sensing and hrdoclimatic data.	Dr. Archana Keeti Chowdhary	Dr. Deevanshi Jagwani. Dr. Harish Kumar Dwivedi. Dr. Prateek Nahar.	CE & CS	Research Proposal
8	SERB	ANRF-AI MAHA	Smart Electrocoagulation: AI-Driven Revolution in Industrial Wastewater Treatment.	Dr. Shamal Mukesh Sen.	Smart Electrocoagulation :AI-Driven Revolution in Industrial Wastewater Treatment.	CM & CS	Research Proposal
9	SERB	ANRF-AI MAHA	A Deep Learning Approach for Early Cancer Detection using MRI Images	Dr. Vaishali Gupta	Dr. J Ponmozhi.	CS & ME	Research Proposal
10	SERB	ANRF-AI MAHA	Transformer-Driven Multi-Scale Plant Disease Detection Under Real Field Conditions	Dr. Vijay Choudhary	Dr. Vaishali Gupta. Dr. J Ponmozhi	ME & CS	Research Proposal
11	SERB	ANRF-AI MAHA	“PID-Controlled Insulin Delivery Based on a Modified Bergman Minimal Model”	Dr. Vandana Dubey	Dr. Kanti Kumar Athankar.	EC & CM	Research Proposal
12	SERB	ANRF-AI MAHA	“Predictive Analytics Model for Reducing Road Accidents Using AI”	Dr. Kalyani Tiwari	Dr. Ashish Nim	CE & CS	Research Proposal
13	SERB	ANRF-AI MAHA	"AI-Enabled National Defence Fire Risk Atlas: Predictive Modelling and Hazard Mapping for Strategic Installations"	Dr. Manish Dubey	Dr. Sumit Bhatiya Dr. Kalyani Tiwari	FT & CS	Research Proposal

14	SERB	ANRF-AI MAHA	AI Augmented Multiscale Wound Imaging with Cancer and Healthy People: From Microfluidics Wound on Chip to Animal and Clinical Deployment	Dr. J Ponmozhi	Dr. S. Dhinakaran (IIT Indore) Prof. Priya Deo (Bharati Vidhya Peth, Pune) Dr. Vaishali Gupta. Dr. Indra Kumar SHah	ME, CS , EC & Dental Dept.	Research Proposal
15	SERB	ANRF-AI MAHA	Leukemia Detection Based on Machine Learning	Dr. Angita Hirwe	Dr. Indra Kumar Shah. Dr. Harish Houd (IIT Nagpur)	EC & EX	Research Proposal
16	SERB	ANRF-JC Bose Grant	Seismic performance assessment of confined masonry building. A comparison of Analytical and Experimental investigation	Dr. Amit Sharma	-	CE	Research Proposal
17	SERB	ANRF-JC Bose Grant	Spatio-Temporal Analysis of Climate-Driven Changes in Rainfall Runoff Response and Hydrological Extremes in the Narmada Basin	Dr. Archana Keerti Chowdhary	-	CE	Research Proposal

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