PIE NEWSLETTER

MONSOON - 2025



Department of Production and Industrial Engineering BIT Mesra

Empowering innovators for the industrial challenges of tomorrow.



Message from
The Head of the Department

Dr. L.N. Pattanaik

It gives me immense pleasure to write this goodwill message for the second issue of bi-annual PIE newsletter of MO'25. Further, it is indeed a moment of glory and fulfilment to see our student body SoPIE compiling and editing the newsletter.

A formal student society was formed as Society of Production & Industrial Engineering (SoPIE) to facilitate Department activities and to enhance student relationship. I am happy to note that the newly formed society conducted a fresher-2025 batch welcome event, an industrial visit and volunteered enormously during IC3MI-25 conference. The faculty and students associated with PIE continue to bring laurels through their capability and sincere efforts.

The previous semester also seen many such achievements. Faculty members published their research outcomes in many journals/conferences of repute. Also, students of the Department presented their papers in various conferences. The Department organised International Conference on Materials, Manufacturing and Management for Industry 4.0 (IC3MI 25) successfully with the cooperation of faculty members and student members of SoPIE. Final year placement scenario is looking good for PIE students till now and I wish success for all in coming months.

A Department is recognized by its present students, alumni and faculty. I wish students of PIE should symbolize skills, sincerity and strength to face all the challenges.

Wish PIE family a happy and prosperous New Year 2026.



About the Department

The Department of Production & Industrial Engineering (PIE) at Birla Institute of Technology, Mesra was established in 1964 as the Department of Production Engineering, with a vision to train future-ready engineers in manufacturing and production disciplines.

Over the years, the department expanded its academic horizon to formally embrace Industrial Engineering, evolving into the Department of Production & Industrial Engineering—reflecting the integrated nature of modern manufacturing systems and operations.

Today, PIE is dedicated to blending engineering fundamentals with industrial and managerial insights, preparing students to tackle complex challenges in manufacturing, operations, supply chain, quality management, and systems optimization. With cutting-edge laboratories, strong industry linkages, and a focus on research and practical learning, the department fosters innovation, leadership, and problem-solving skills among its students.

Students benefit from various academic projects, workshops, industrial visits, and interdisciplinary collaborations, positioning them for successful careers across sectors such as manufacturing, analytics, consulting, and research.

Academic Programmes

B.Tech

The B.Tech program in Production and Industrial Engineering at BIT Mesra, Ranchi is designed to provide a strong foundation in manufacturing systems, industrial engineering, and modern production technologies under the Choice Based Credit System (CBCS). The curriculum covers key areas such as Manufacturing Processes, Operations Research, Production Planning and Control, Quality Engineering, Machine Tool Design, Supply Chain Management, and Automation.

Aligned with Industry 4.0, the program exposes students to advanced technologies including Computer Integrated Manufacturing, Robotics, Additive Manufacturing, Flexible Manufacturing Systems, and Smart Manufacturing. Through industry-oriented electives such as Lean Manufacturing, Six Sigma, AI and Data Analytics, and Sustainable Manufacturing, students develop problem-solving and continuous improvement skills.

Extensive laboratory work, industrial training, internships, and projects ensure hands-on learning, while a focus on teamwork, communication, and project management prepares graduates to excel in manufacturing, operations, logistics, R&D, and emerging technology-driven industries.

Student's Message

My name is Kushagra Singh, and I am a third-year UG student in the Production and Industrial Engineering department at BIT Mesra, Ranchi. Over the past few semesters, I have spent most of my time balancing lectures, assignments, and project work, gradually getting more comfortable with core industrial concepts. Classroom discussions and problem-solving sessions have shaped the way I approach manufacturing systems and process-related thinking. Faculty members tend to keep lectures interactive and are encouraging when doubts come up, which has made it easier to stay engaged. Working on coursework and projects with peers has been a regular part of the journey and has helped me learn from different perspectives. With time, the learning process has felt more structured and purposeful. Overall, my experience in the department has been steady, practical, and personally meaningful.



Academic Programmes

M.Tech

The M.Tech program offered by the Department of Production and Industrial Engineering at BIT Mesra, Ranchi is structured to develop advanced competencies in manufacturing systems, industrial engineering, and data-driven decision-making. The program combines rigorous coursework with research and application-oriented learning to prepare graduates for leadership roles in industry and academia.

Students engage with advanced concepts such as smart manufacturing systems, production optimization, industrial automation, modelling and simulation, logistics and supply networks, and intelligent manufacturing technologies. Strong emphasis is placed on the use of computational tools, analytical methods, and modern manufacturing platforms to improve productivity, quality, and sustainability.

Well-equipped laboratories and project-based learning provide practical exposure to CAD/CAM, CNC systems, automation, and simulation environments. Graduates of the program are well positioned to contribute to advanced manufacturing, operations management, R&D, and emerging technology-driven industrial domains, with a strong foundation for lifelong learning and innovation.

Student's Message

I am Nikhilesh Parida, and I am currently a postgraduate scholar in the Production and Industrial Engineering stream at the Birla Institute of Technology, Mesra. From 2025 to 2027, I pursue my Master of Technology (M.Tech), an academic phase that continuously shapes my technical mindset and personal outlook. I choose this specialization because I am genuinely drawn to manufacturing technologies, system optimization, and industrial automation. Being part of a demanding core engineering discipline challenges me daily, but I approach it with focus and resilience. The guidance I receive from professors and the collaborative spirit among my peers play a major role in strengthening mytechnical foundation and overall growth. I begin this journey with uncertainty, yet through consistent effort and discipline,I steadily build confidence in my abilities. Engaging inacademic projects, technical presentations, and seminars sharpens my problem-solving, communication, and leadership skills. The supportive and motivating environment at BIT Mesra helps me grow into a more capable, self-reliant, and confident engineer. This ongoing experience reinforces my belief in choosing challenging paths and inspires others to step forward boldly into core engineering fields.



Academic Programmes

Ph.D

The Ph.D. program in the Department of Production and Industrial Engineering at BIT Mesra, Ranchi is aimed at nurturing high-quality research that addresses both fundamental manufacturing challenges and emerging industrial needs. The program provides a strong platform for doctoral scholars to pursue advanced research across traditional and contemporary areas of production and industrial engineering.

Research opportunities span core manufacturing domains such as advanced machining processes, joining and fabrication technologies, metal forming and casting processes, and powder-based manufacturing, alongside modern engineering tools including Additive Manufacturing, CAD/CAM systems, Robotics and Automation, Flexible Manufacturing Systems (FMS), and Computer Integrated Manufacturing (CIM).

The program also encourages interdisciplinary research in production optimization, quality and reliability engineering, Lean and Six Sigma methodologies, supply chain and logistics systems, ergonomics, work system design, and facility planning. Emerging focus areas such as sustainable and green manufacturing, smart production systems, and advanced operations research techniques enable scholars to contribute innovative solutions to complex industrial problems.

With strong faculty mentorship, access to advanced laboratories, and opportunities for industry interaction, the Ph.D. programme equips researchers with the skills required to publish impactful research, develop novel technologies, and assume leadership roles in academia, R&D organizations, and advanced manufacturing industries.

Student's Message

"I am Purushottam Kumar, and over the past two years my journey as a research scholar has been both challenging and deeply fulfilling. The department has offered a vibrant research ecosystem through its state-of-the-art facilities and exceptionally supportive administrative and technical staff. Throughout this often solitary and unpredictable journey, my guide and co-guide have been constant sources of encouragement and direction. I am grateful to the department for facilitating the opportunity to work with a co-guide from IIT (ISM) Dhanbad, whose guidance and access to world-class facilities significantly enriched my research experience and academic perspective."



International Conference on Materials, Manufacturing and Management for Industry 4.0 (IC3MI-25)

The Department of Production & Industrial Engineering (PIE), Birla Institute of Technology, Mesra, successfully organized the International Conference on Materials, Manufacturing & Management for Industry 4.0 (IC3MI–25) on 5th and 6th December 2025.



The conference served as a global platform for academicians, researchers, industry professionals, and students to engage in discussions on emerging trends and challenges aligned with Industry 4.0. The conference was graced by Jayant Damodar Patil, President, Indian National Academy of Engineering (INAE), as the Chief Guest, whose address emphasized the critical role of interdisciplinary research and innovation in advancing modern industrial systems. IC3MI–25 witnessed participation from delegates across the globe,



promoting international collaboration and knowledge exchange. The event also saw active representation from premier institutions such as Indian institute of Management Mumbai and Indian Institute of Technology Kharagpur, along with several other reputed universities and research organizations.

Through keynote lectures, technical paper presentations, and interactive sessions, IC3MI–25 reinforced the department's commitment to research excellence, global engagement, and academic–industry collaboration, further strengthening its standing in the domain of production, industrial, and management sciences.

Advanced Manufacturing and Materials Characterization: Workshop Highlights

The Department of Production & Industrial Engineering (PIE), Birla Institute of Technology, Mesra successfully organized a two-day workshop on "Advanced Manufacturing and Materials Characterization" on 29–30 August 2025 under the Science and Engineering Research Board-Scientific Social Responsibility (SERB-SSR) policy of the Anusandhan National Research Foundation (ANRF). The programme was funded by ANRF and aimed at promoting knowledge dissemination and hands-on learning in advanced manufacturing technologies and modern materials evaluation methods.

The workshop brought together faculty members and researchers from various institutions, providing a collaborative platform to discuss emerging trends in manufacturing and materials science. The technical sessions included expert lectures on aluminum composites for automotive applications, laser-based welding, surface engineering, additive manufacturing, and advanced characterization techniques for assessing microstructure, hardness, wear, and thermal properties.





A key highlight of the workshop was the hands-on training sessions conducted at the Central Instrumentation Facility, where participants gained practical exposure to advanced equipment such as X-ray Diffraction (XRD), Universal Testing Machine (UTM), and Field Emission Scanning Electron Microscopy (FESEM). Interactive discussions and laboratory demonstrations enriched the learning experience and encouraged active participation.

The workshop concluded with a valedictory session, reaffirming the department's commitment to research excellence, capacity building, and strengthening academic–industry engagement in advanced manufacturing and materials engineering.

Industry Interaction

L&T
LARSEN & TOUBRO

On 7th August 2025, the Department of Production and Industrial Engineering (PIE) welcomed a technical expert team from L&T for an academic and research-oriented visit aimed at exploring the department's facilities, and areas of expertise.



The visit marked an important moment of interaction between industry professionals and the academic environment, providing an opportunity to present the department's research ecosystem in a structured manner.

During the visit, the Head of the Department, along with faculty members, engaged in detailed interactions with the visiting team and offered insights into the department's major research areas and the technical strengths of its faculty. The discussions focused on ongoing research efforts and expertise in domains such as metal additive manufacturing, Wire Arc Additive Manufacturing (WAAM), and surface and materials engineering. These interactions highlighted the department's research orientation and its emphasis on advanced manufacturing and materials-related studies.

The visit served as a platform for presenting the department's research capabilities and infrastructure, while also facilitating professional dialogue between the faculty and the visiting experts.

Industrial Visit

Usha Martin Manufacturing Facility

The Society of Production and Industrial Engineering (SoPIE), BIT Mesra, successfully organized an industrial visit on November 5, 2025 to Usha Martin Manufacturing facility ,Ranchi, a leading name in the manufacturing and steel wire rope industry. A total of 35 students from the III and V semesters participated in the visit, making it an engaging and interactive earning experience. The visit aimed to bridge the gap between theoretical knowledge and practical applications with large-scale manufacturing operations.



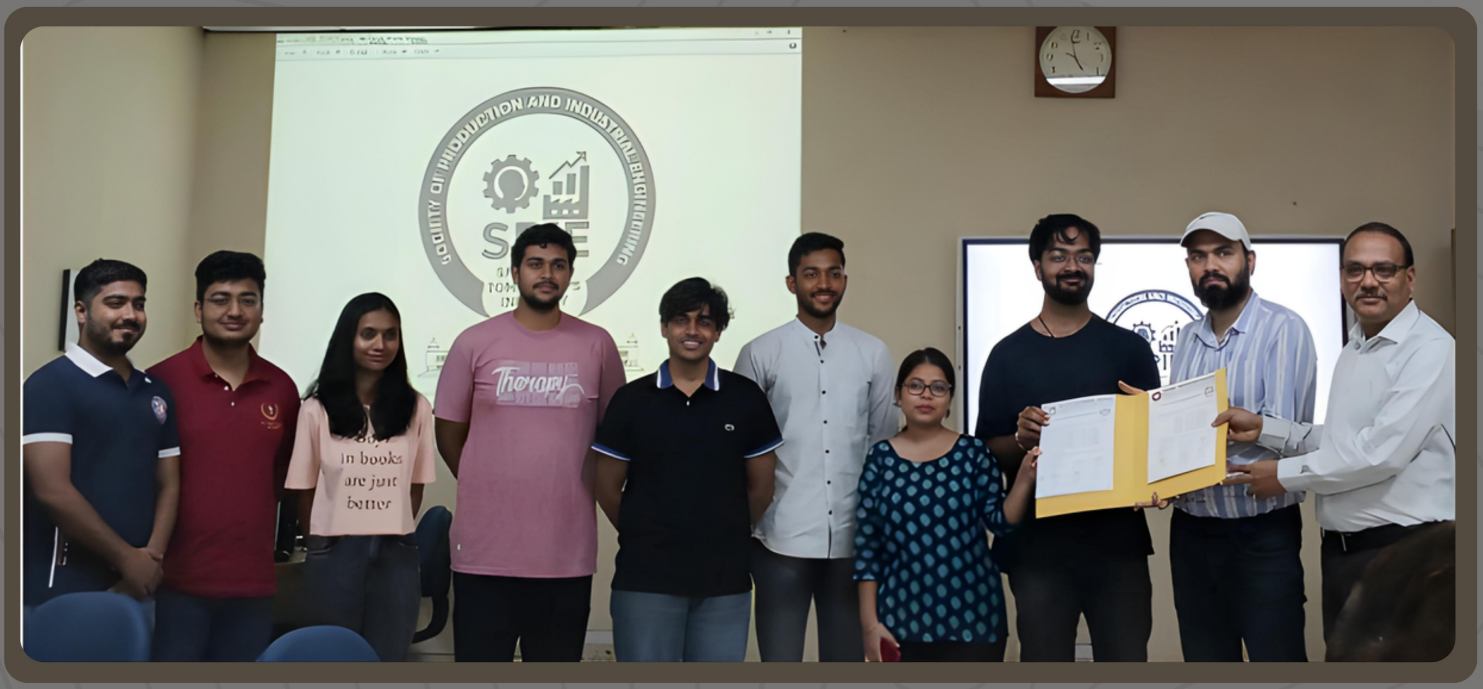
During the visit, students were introduced to various production processes, including wire drawing, stranding, rope closing, heat treatment, and finishing operations. Detailed explanations were provided on shop-floor practices, highlighting workflow management, machine operation, safety protocols, and quality assurance measures followed at each stage of production.

Students also observed the implementation of industrial standards, automation systems, and lean manufacturing practices, which helped them understand efficiency optimization and process control in a real industrial setup.



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Formation of SoPIE Student Society



The Society of Production and Industrial Engineering (SoPIE) was formed on 21st August 2025 under the guidance of the HOD of Department of Production and Industrial Engineering. SoPIE serves as a dynamic platform for students, innovators, and future engineers to bridge the gap between academics and the ever-evolving industrial world.

SoPIE provides a platform that inspires innovation, teamwork, and readiness for real-world engineering challenges by offering

1. Industrial visits and exposure to real-world processes.
2. Networking and industry connections with professionals and experts.
3. Leadership and team experiences that shape future leaders.
4. Guest lectures and mentorship from industry veterans.

Through teamwork, leadership opportunities among its members and interaction with industry professionals, SoPIE aims to enhance technical skills, problem-solving abilities, and career readiness, preparing its members for the challenges of Industry 4.0.

Faculty Achievements

Dr. Bappa Acherjee continues to make our department proud through his outstanding research work and academic contributions.

Awards:

- Listed among the “World’s Top 2% Scientists” (Single-Year Impact Category) for 2025, based on the standardized citation indicators developed by Ioannidis et al. (Stanford University / Elsevier, 2020 and subsequent updates). This is his fifth consecutive recognition in this category.
- Received the BIT Faculty Appreciation Award (BITFAA) — Impact of Publications, 2025



Fresher's Welcome
K25 Batch

The SoPIE organized a Fresher's Welcome Event for the K25 batch to warmly welcome them to the Department. The session introduced freshers to the Department and the wide range of academic and co-curricular opportunities they can explore.

Faculty members shared words of guidance and motivation, encouraging students to stay curious, confident, and proactive-both inside and outside the classroom. The event concluded with an interactive session that allowed freshers to freely engage, ask questions, and connect with faculty, creating an atmosphere of enthusiasm and openness.



Alumni Messages

From PIE to Leadership: Lessons from the Ground Up.

My journey began with Production & Industrial Engineering (PIE) at BIT Mesra, and the thinking I learned here has stayed with me throughout my career. PIE gave me more than technical knowledge—it instilled systems thinking, process discipline, and the ability to see the bigger picture, qualities that have guided every professional decision I've made.

Starting in field and operational roles, my career took me across leading automotive organizations including Eicher, Maruti Suzuki, Hyundai Motor India, Tata Motors,Volkswagen Group India, and today Stellantis India, where I lead multiple global brands. Across diverse roles—from operations to national leadership and P&L ownership—the PIE foundation consistently helped me navigate complexity, drive transformation, and buildsustainable businesses.



Kumar Priyesh, Batch of 1995
Business Head & Director, Stellantis, India

To my juniors: focus on building capability before titles. Learn how businesses truly work—on the shop floor, in the field, with customers, and with data. Take responsibility early, stay curious, and practice structured thinking. Those who master fundamentals and execution always move ahead in the long run.

I remain deeply grateful to my professors, seniors, peers, and the entire PIE department at BIT Mesra. It is a privilege to be an alumnus of a department that quietly builds leaders who create lasting impact.

PIE Leadership Mantra:

Think end-to-end. Simplify processes. Execute with discipline. Lead with confidence.

Alumni Messages

Being a proud alumnus of the department of production and industrial engineering, it is a great pleasure to share my views on the department's great outputs towards the nation building. The hands on practical and classroom courses enable students to solve the real world challenges later in their career. Courses like manufacturing process, supply chain management, design of machine elements, metrology, material science, production management etc are an integral part of today's industry. Not only does the department teaches the conventional methodologies, but it also gives the very required focus on advanced processes like additive manufacturing, single point incremental forming etc.

Apart from the regular curriculum, the department also houses some amazing technical clubs of the institute. I have worked on the Formula Student race car team myself, where I could apply various course learnings directly, such as welding, CAD design, ergonomics and machine design. The high-end facilities, as well as world-class professors, are the core backbone that make the students industry-ready, year after year.



Utkarsh, Batch of 2018
Scientist/Engineer,
ISRO

I truly believe that in the coming times, the institute will produce amazing engineers for the nation in the fields of Production and Industrial Engineering. The curriculum having a good share of courses from the mechanical engineering department, provides opportunity to the students to strive and reach for stars in core mechanical as well.

The key for students to succeed is paying attention in lectures, doing all the assignments individually without friends/AI's help and develop great intellect of engineering (both theoretical and practical). I wish the department's professors, staffs and most importantly, the light behind the sparkle - the students, a great success in the future.

Ongoing Sponsored Research Projects

- Prof. Indranil Manna (PI) is leading a major DST-TDP-sponsored research project on “Laser Additive Manufacturing development and refurbishment of high-temperature resistant structural components (LAMAR).” This project focuses on the development of advanced laser-based manufacturing and repair technologies for critical industrial components operating under extreme conditions (₹4.25 Crores, 3-year duration).

- Prof. Indranil Manna is the Principal Investigator of a SERB–CRG funded project titled “Development of hard and wear-resistant coating for hydraulic cylinders by laser surface cladding as a substitute for hard chrome plating.” The project addresses industrial challenges related to component durability, sustainability, and performance enhancement (₹44.66 Lakhs, 3-year duration).

- Dr. Bappa Acherjee (PI) is leading a DST-ANRF-CRG funded project titled “Laser Based Manufacturing of multi-layer polymer-metal sandwich composite and performance assessment for lightweight material applications”. (₹54 Lakhs, 3-year duration).

- Dr. Prashant Prakash (PI) is leading a sponsored research project funded by JCSTI titled “Robotic Bobbin Friction Stir Welding (B-SFW) System Development for efficient On-Site Structural Welding” (₹10 Lakhs, 2-year duration)

Some Publications

Publications MO(2025)

- Nitish Kaushik, Sanjay Kumar Jha & Ravi Shankar Anand, "Electrothermal modelling of μ-EDM drilling for prediction of hole quality in CFRP laminates", Journal of Mechanical Science and Technology, PP:2797-2807,Vol:39, No: 05, May 2025.(DOI 10.1007/s12206-025-0438-4; IF:1.5; Scopus; SCIE; Publisher: KSME).

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- Anand, A., Tiwari, S.K., Prakash, V., Singh, R.K. (2025), Optimising stir casting parameters for aluminium metal matrix composite fabrication: a hybrid approach. International Journal on Interactive Design and Manufacturing (IJIDeM), 19, 3933–3945. *https://doi.org/10.1007/s12008-024-01895-y(Scopus)*.

- Gaurav, G. Paul (2025), Enhanced tribological performance of nanolubricants dispersed with mechanically exfoliated graphene oxide nanosheets, Diamond and Related Materials, Vol. 153, pp. 112097, DOI: https://doi.org/10.1016/j.diamond.2025.112097. (IF: 4.3)

- Singh, S.D., Anand, P., Di Nardo, M. Singh, A.K., Pandey, S . Challenges and Opportunities in Recycling Technology of Silicon-Based Photovoltaic Solar Panels: A Systematic Review. Circ.Econ.Sust. (2025). *https://doi.org/10.1007/s43615-025-00692-3*

- Pandey, S., Singh, A.K., Parhi, S. et al. Unveiling the Knowledge Dynamics of Workplace Safety Through BERTopic Modeling. Process Integr Optim Sustain (2025). *https://doi.org/10.1007/s41660-025-00575-y*

- Manoharan, P. K., Tiwari, S. K., & Sharma, V. (2025). Enhancing Perishable Materials Supply Chain Management Using Fuzzy Entropy Model. Journal of Advanced Manufacturing Systems.

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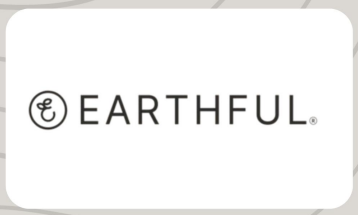
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Our Recent Recruiters

















































Our Recent Recruiters





































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