International Conference
on

Innovations in Fluid Power: Shaping the Future of Mobile and Industrial Machinery

IFP'26

23rd-24th January 2026

IIT (ISM) Dhanbad, Jharkhand, India

Organized by

Department of Mechanical Engineering

Indian Institute of Technology (Indian School of Mines), Dhanbad

Jharkhand (India) - 826004

in Association with

Fluid Power Society of India (FPSI)

About the Conference

The International Conference on Innovations in Fluid Power: Shaping the Future of Mobile and Industrial Machinery (IFP'26) serves as a premier platform to explore ground-breaking advancements and foster discussions around the transformative role of fluid power in modern engineering. Scheduled to bring together industry leaders, academicians, researchers, and practitioners, IFP'26 aims to spotlight cutting-edge innovations that drive efficiency, sustainability, and performance across mobile and industrial machinery sectors. Fluid power technology has long been integral to various industries, from mining machinery, and agricultural machinery to aerospace and manufacturing systems. However, with the emergence of Industry 4.0, electrification, and the global emphasis on sustainability, the domain is undergoing a paradigm shift. This conference seeks to address these challenges and opportunities by focusing on pivotal topics such as:

- **Energy Efficiency and Sustainability:** Exploring energy-saving mechanisms, advanced hydraulic and pneumatic systems, and strategies for reducing the carbon footprint of fluid power systems.
- **Digital Transformation:** Integrating IoT, AI, and machine learning to enable intelligent, self-optimizing systems for real-time performance enhancement.
- **Advanced Materials and Manufacturing:** Investigating the use of innovative materials, additive manufacturing, and surface technologies to enhance durability and efficiency.
- **Hybrid and Electro-Hydraulic Systems:** Delving into the synergy between traditional hydraulics and modern electrification to develop hybrid solutions tailored to emerging demands.
- **Safety, Ergonomics, and Human Factors:** Improving operator safety, comfort, and productivity through ergonomic design and advanced control interfaces.
- **Condition Monitoring and Fault Management:** Highlighting different condition monitoring methods and fault management system to ensure the healthy operation of the component and reducing the maintenance time.

With an emphasis on cross-disciplinary collaboration, IFP'2026 will feature keynote lectures by globally renowned experts, technical sessions showcasing ground-breaking research, interactive workshops, and networking opportunities. Attendees will gain insights into the latest trends, learn about state-of-the-art technologies, and connect with peers to exchange ideas and drive innovation.

Whether you are a researcher exploring theoretical advancements, an industry professional seeking practical solution, or a policy-maker striving to set future directions, IFP'2026 offers an unparalleled opportunity to engage in shaping the future of fluid power technology.

Join us at IFP'2026 to be a part of this transformative journey towards a smarter, more sustainable future for mobile and industrial machinery.

Thematic Areas

The conference focuses on emerging innovations and research in fluid power systems, targeting both mobile and industrial applications. The thematic coverage includes but is not limited to:

1. **Innovations and Advancements in Fluid Power Technologies**
   - Emerging technologies in hydraulic and pneumatic systems
   - Innovations in control strategies and actuation technologies
   - Integration of fluid power with mobile robotics and autonomous systems
   - Hybrid hydraulic systems and novel architectures
   - Water hydraulics

2. **Fluid Power in Mobile and Aerospace Machinery**
   - Hydraulic applications in construction, agriculture, mining, and transportation machinery
   - Aerospace and defense: hydraulic systems in aircraft and missiles
   - Autonomous mobile machinery and fluid power integration
   - Advanced flight control and vehicular actuation systems
3. **Industrial Fluid Power Systems and Automation**
   - Industrial hydraulics and automation technologies
   - System-level design, optimization, and performance tuning
   - Smart manufacturing using fluid power
4. **Hydraulic and Pneumatic Components**
   - Design and performance of pumps, motors, valves, and cylinders
   - Innovations in component materials, sealing, and manufacturing techniques
   - Compact and energy-efficient component development
   - Component testing, characterization, and benchmarking
5. **Tribology and Wear in Fluid Power Systems**
   - Lubrication strategies and fluid–component interactions
   - Surface engineering for wear resistance in hydraulic systems
   - Friction reduction techniques for improved energy efficiency
   - Life cycle assessment of components under tribological stress
6. **Simulation, Modeling, and Computational Approaches**
   - Mathematical modeling of fluid power systems and subsystems
   - Simulation tools for system design, fault prediction, and optimization
   - Multi-physics and co-simulation environments
   - Computational Fluid Dynamics (CFD) and Finite Element Analysis (FEA) applications
7. **Sustainable and Environment-Friendly Fluid Power**
   - Green fluid technologies and biodegradable materials
   - Energy-efficient circuit design and energy recovery techniques
   - Noise reduction and thermal management systems

8. **Artificial Intelligence and Digitalization in Fluid Power**
   - AI/ML techniques for predictive maintenance and adaptive control
   - Digital twins and IoT-enabled fluid power systems
   - Smart sensors and data-driven diagnostics
   - Intelligent automation and cyber-physical systems
9. **Future Directions and Cross-Disciplinary Innovations**
   - Integration of renewable energy sources in hydraulic systems
   - Electro-hydraulic and hydro-mechatronic systems
   - Innovations at the intersection of materials, electronics, and fluid mechanics
   - Policy, safety standards, and emerging industrial challenges
10. **Electrical and Electronic Integration in Fluid Power Systems**
    - Electro-hydraulic and electro-pneumatic control systems
    - Power electronics in fluid power drives and actuators
    - Sensor integration and signal conditioning for smart fluid power
    - Embedded systems and microcontrollers for real-time control
    - Electric-hydraulic hybrids for enhanced efficiency and flexibility
    - Interface design for human-machine interaction (HMI) in hydraulic controls
11. **Diagnosis and Prognosis of Fluid Power Components and Systems**
    - Fault identification and fault tolerant control
    - Life assessment of critical components
    - Condition monitoring through oil and vibration analysis
    - Oil analysis and future scope of oil-reusability
    - Best maintenance practices

About Indian Institute of Technology (ISM) Dhanbad

Indian Institute of Technology (Indian School of Mines), Dhanbad formerly Indian School of Mines (ISM), was setup by the Government of India and formally inaugurated by on 9th December 1926, by Lord Irwin, the then Viceroy of India on the model of Royal School of Mines, London. ISM was granted autonomy and became a deemed university in the year 1956. In 1996, the institute came under financial and administrative control of MHRD. In the year 1997, ISM was affiliated to IIT (JEE) for admission to its undergraduate courses. Indian School of Mines was converted to Indian Institute of Technology (Indian School of Mines), Dhanbad in the year 2016.

Situated in the heart of the country's prime coking coal belt, 260 kms from Kolkata with a campus spread over an area of 393 acres, (with 218 acres of existing campus and 175 acres under acquisition and development) the fully residential IIT (ISM) has all the facilities of world class academic institute. What started as an institution to impart mining education has graduated into a full-fledged technical institution of international acclaim offering a host of programmes like B. Tech, M. Tech, M. Sc. Tech, and MBA.

About the Department of Mechanical Engineering

The Department of Mechanical Engineering started the journey in 1999, and successfully completed 26 years with excellence. Presently, the department is the largest in the institute having 47 faculty members. The department offers two UG courses, one in Mechanical Engineering and another in Mining Machinery Engineering. Faculty members of the department have guided more than 300 PhD students so far. The UG and PG students are working with the faculties in the field of Fluid Power Systems and Control, Mining Machinery, Control Systems, AI/ML, Vibration and Acoustics, Robotics, Renewable Energy, Maintenance and Tribology, Refrigeration, CFD, Fluid-structure Interactions, Turbomachinery, Manufacturing Technology along with conventional thermal engineering and machine design. Students of the department are associated with FPSI, Robotics Club, Smart Manufacturing, ASME students' chapter and other professional bodies. The UG and PG students of the department are associated with several national and international research and consultancy projects funded by several agencies and industries. Also, a good number of them complete their research internships abroad.

About Fluid Power Society of India (FPSI)

In 1973, a group of technocrats, practicing engineers, manufacturers and academicians founded the Fluid Power Society of India with the objective of disseminating the tremendous potential that the fluid power industry has, to all those connected with it, in any capacity. FPSI is a not-for-profit professional body committed to promoting fluid power knowledge and technology in the country. The Fluid Power Industry has evolved comprehensively over the last century and has generated intensive research, efficient production systems and integrated applications. The fluid power industry has three large segments: mobile hydraulics, industrial hydraulics, and pneumatics. Historically, the mobile hydraulic segment has been the largest, accounting for about 50% of total fluid power sales. The industrial hydraulic and pneumatic segments are nearly the same size, each with about 25% of total fluid power sales.

Important Dates (Extended)

Abstract Submission Deadline	~~30th June 2025~~	30th July 2025
Full Paper Submission Deadline	~~30th August 2025~~	30th September 2025
Notification of Acceptance	~~30th September 2025~~	15th October 2025
Early Bird Registration Deadline	~~15th October 2025~~	30th October 2025
Final Registration Deadline	~~15th November 2025~~	30th November 2025

Note: The deadlines have been extended to facilitate wider participation.

- Abstracts: Maximum 250 words, highlighting the aim, methodology, and outcomes of the research with 4-5 keywords.
- Full Papers: Maximum 6-8 pages, including references, following the format attached.
- Plagiarism must be less than 10% and plagiarism report from Turnitin or ithenticate must be submitted along with the full paper.
- Accepted papers will be presented during the conference, and selected papers will be published in the conference proceedings and indexed in reputed databases.
- Paper Submission Link:

  https://cmt3.research.microsoft.com/IFP2026

Registration Fees

Category		INDIAN DELEGATES		FOREIGN DELEGATES	
		Early Bird Reg. (Until 15th Oct. 2025)	Regular Reg. (After 15th Oct. 2025)	Early Bird Reg. (Until 15th Oct. 2025)	Regular Reg. (After 15th Oct. 2025)
Industry Delegates		₹10,000	₹12,000	$300	$500
Academicians/Researchers				$250	$450
Faculty		₹8,000	₹10,000	$250	$400
Post-Doctoral Fellow		₹6,000	₹8,000	$250	$400
Students	PG and PhD	₹5,000	₹6,000	$150	$300
	UG	₹1,500	₹2,000		

Foreign authors have the flexibility to present their accepted papers in a hybrid format. Those opting for online presentations will receive a 30% discount on the registration fee.

The registration fee covers access to all conference sessions, conference materials, refreshments, and the networking lunch & dinner.

Accommodation and Travel

Accommodation: IIT (ISM) Dhanbad offers on-campus accommodation for delegates on First cum First serve basis. A list of recommended hotels near the conference venue will also be provided.

Travel: Dhanbad is well-connected by rail and road. The nearest airport is Durgapur Airport (98 km), while Ranchi Airport is approximately 160 km away. The conference committee will assist with travel arrangements upon request.

Venue

The conference will be hosted at IIT(ISM) Dhanbad, one of India's premier institutions for mining and mechanical engineering education and research. The state-of-the-art facilities and vibrant academic environment will provide the perfect backdrop for an engaging and productive conference.

Sponsorship Opportunities

Organizations and industry leaders are invited to partner with us as sponsors for this prestigious event. Sponsorship will provide excellent visibility and engagement opportunities with leading professionals and experts in fluid power globally.

Sponsorship Tiers

Platinum Sponsor: ₹10,00,000

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- Exhibition space and networking opportunities
- 5 Complimentary Delegate Registrations

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- Branding on all conference materials, banners, and website
- Exhibition space and networking opportunities
- 3 Complimentary Delegate Registrations

Bronze Sponsor: ₹2,00,000

- Branding on all conference materials, banners, and website
- 2 Complimentary Delegate Registrations

Exhibitor Fees

11,000 plus 18% GST for a 3m x 3m booth space
(includes basic furnishings and power supply)

Advertisements in Souvenir

A Souvenir will be brought out and circulated widely during Conference.
Advertisements for the Souvenir are invited from organization as per following rates.

Back Cover (Colour)	Inside Front Cover (Colour)	Inside Back Cover (Colour)	Inside Full Page (Colour)	Inside Full Page (BW)
₹ 1,00,000/-	₹ 75,000/-	₹ 50,000/-	₹ 50,000/-	₹ 20,000/-

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Tourist Places Near by Dhanbad

Dhanbad, a mining town, is internationally famous for its rich coalfields. It lies at the western part of Eastern Indian Shield, and the city is only 259 km by rail route from Kolkata. The city is ornamented by several tourist spots, namely Parasnath Hills, Parasnath Temple, Topchanchi, famous Jharia coalfields, to mention a few. The other important places are Bodh Gaya, Maithon Dam, and Panchet Dam.

BODH GAYA

Lying at 220 km distance from Dhanbad, Bodh Gaya is the place where Gautam Buddha attained unsurpassed, supreme Enlightenment. It is a place which should be visited or seen by a person of devotion and which would cause awareness and apprehension of the nature of impermanence. About 250 years after the Enlightenment, the Buddhist Emperor, Ashoka visited the site of pilgrimage and established the Mahabodhi Temple.

USRI FALL

Amidst the range of the famous Parasnath Hills, the Usri River gushes down from a steep gorge, some 40 feet high in three separate streams. Located 68 km away from Dhanbad town. It is a favourite picnic spot.

JHARIA COALFIELDS

Jharia coal field lies in the Damodar River Valley, and covers about 110 square miles (280 square-km). It is one of the most important coalfields in India, and produces the only source of cocking or metallurgical coal in the country. Jharia, a suburb of Dhanbad city, is also an important town of the Jharkhand state.

PANCHET DAM

Panchet Dam was the last of the four multi-purpose dams included in the first phase of the Damodar Valley Corporation. It was constructed across the Damodar River at Panchet in Dhanbad district in the Indian state of Jharkhand, and opened in 1959. Panchet Dam is 9 kilometres from Chirkunda on Grand Trunk Road, and 54 kilometres from Dhanbad. It is a popular tourist spot.

PARASNATH TEMPLE

The Parasnath Temple is considered to be one of the most important and sanctified holy places of the Jains. According to Jain tradition, not less than 23 out of 24 Tirthankaras (including Parsvanatha) are believed to have attained salvation here.

MAITHON DAM

Maithon is 52km from Dhanbad. This is the biggest reservoir in the Damodar Valley. This dam, designed for flood control, has been built on Barakar river. It has a unique underground power station, which is first of its kind in South East Asia. Kalyaneshwari temple at Kalyaneshwari in Asansol of Bardhaman district in the Indian state of West Bengal is located on the banks of Barakar River, about 5 kilometres (3.1 mi) downstream from Maithon Dam of Damodar Valley Corporation.

TOPCHANCHI LAKE

Topchanchi lake lies at 37 km from Dhanbad. It was excavated along the slope of the Parasnath Hills in 1915 to supply water to Jharia. Situated in a calm, quiet and beautiful environment. Topchanchi still is a veritable paradise to nature lovers. A wild life sanctuary has been built in the hilly forests around the lake. The Topchanchi Wildlife Sanctuary covers a sprawling plot that measures approximately 8.75 square kilometers. Although the Topchanchi Wildlife Sanctuary is not that spacious yet it manages to preserve the innocuous essence of the wild beasts that reside in it.

Contact Information

For any queries related to the conference, paper submission, or sponsorship opportunities, please contact:

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We look forward to welcoming you to IIT (ISM) Dhanbad for this exciting and impactful conference on the future of fluid power systems in mobile and industrial machinery. Join us to shape the future of fluid power!