

PROGRAMME SCHEDULE

DAY – I (24TH JANUARY 2026, SATURDAY)

| TIME | EVENT | VENUE |
|--|---|--|
| 07.30 AM - 08.30 AM | BREAKFAST | GJLT DOME |
| 08.00 AM - 09.00 AM | REGISTRATION | |
| 09.00 AM - 10.15 AM | INAUGURAL CEREMONY | GJLT |
| 10.15 AM – 10.30 AM | MoU Exchange for CoE & Research Collaborations | |
| 10.30 AM – 11.30 AM | HIGH TEA | GJLT DOME |
| | Plenary Session I (Venue: GJLT) [Intro about the Session Chairs] Session Chair: Dr. Alexander Flaig, Bosch Rexroth Session Co-chair: Prof. Somnath Chattopadhyay, IIT (ISM) Dhanbad | |
| 11.30 AM – 12.50 PM | Keynote Speech I (30 min talk) (Intro about the Speaker) Speaker: Prof. Andrea Vacca , Director, Maha Fluid Power Research Center, Purdue University, USA Title: <i>Advancing Actuation Technology through Integrated Electric-Hydraulic Component Design</i> | Keynote Speech II (30 min talk) (Intro about the Speaker) Speaker: Mr. Dimitrov Krishnan , MD, Volvo CE Title: <i>Construction and Mining Equipment Industry in India and Potential for Innovation and Manufacturing in Hydraulics</i> |
| TEA BREAK | | |
| Technical Session I (Venue – Mechanical Engineering) | | |
| 12.55 PM – 02.00 PM | Track 1: Innovations and Advancements in Fluid Power Technologies Venue: Conference Room, Mechanical Department Session Chair: Mr. Suresh Kanan, Kolben Hydraulics Session Co-chair: Prof. Sanjoy Kr. Ghoshal, IIT (ISM) Dhanbad | Track 2: Fluid Power in Mobile & Aerospace Industry Venue: Seminar Room, Mechanical Department Session Chair: Mr. Ramesh K, BEML Limited Session Co-chair: Mr. Anjeeve George, Danfoss |
| | | Track 3: Industrial Fluid Power and Systems Venue: CR 1, Mechanical Department Session Chair: Mr. Somendra Mishra, Volvo CE Session Co-chair: Mr. Rajesh Malik, CNH |
| 02.00 PM – 03.00 PM | LUNCH BREAK | |
| | GJLT DOME | |
| | Plenary Session II (Venue: GJLT) [Intro about the Session Chairs] Session Chair: Mr. Dimitrov Krishnan, MD, Volvo CE Session Co-chair: Dr. Andrea Vacca, Purdue University | |
| 03.00 PM – 05.00 PM | Keynote Speech III (30 min talk) (Intro about the Speaker) Speaker: Dr. Emma Frosina , University of Sannio Benevento, Italy & Chair of Board of Director, Global Fluid Power Society Title: <i>Performance by Design: Reimagining Energy Efficiency in Fluid Power from Components to Systems</i> | Keynote Speech IV (30 min talk) (Intro about the Speaker) Speaker: Dr. Alexander Flaig , Senior Vice President, EMS Bosch Rexroth AG, Germany Title: <i>Beyond Platforms: From technology to solutions with fit-to-market hydraulics</i> |
| | | Keynote Speech V (30 min talk) (Intro about the Speaker) Speaker: Dr. Biju Prasad , Group Director, Control System Actuation Group, VSSC, ISRO, India Title: <i>From Ground to Orbit: Innovations in Actuation Systems Shaping ISRO's Future Missions</i> |
| 05.00 PM – 05.20 PM | HIGH TEA BREAK | |
| Technical Session II (Venue – Mechanical Engineering) | | |
| 05.20 PM – 06.30 PM | Track 4: Hydraulic & Pneumatic Components Venue: Conference Room, Mechanical Department Session Chair: Mr. Ravi Jaiprakash, ADA Session Co-chair: Dr. Arun Dayal Uday, IIT (ISM) Dhanbad | Track 5: Tribology & Wear in Fluid Power Systems - I Venue: Seminar Room, Mechanical Department Session Chair: Mr. Seshnath B, Walvoil Session Co-chair: Prof. Subrata Kr. Ghosh, IIT (ISM) Dhanbad |
| | | Track 6: Simulation, Modelling and Computational Approaches Venue: CR 1, Mechanical Department Session Chair: Dr. Ankur Miglani, IIT Indore Session Co-chair: Dr. Rakesh Kumar, IIT (ISM) Dhanbad |
| 07.00 PM – 10.00 PM | CULTURAL EVENT FOLLOWED BY GALA DINNER | |
| | SCOLOMIN CLUB | |

DAY – II (25TH JANUARY 2026, SUNDAY)

| TIME | EVENT | VENUE |
|---------------------|--|--|
| 07.30 AM - 08.30 AM | BREAKFAST | GJLT DOME |
| 08.30 AM – 9.50 AM | Plenary Session III (Venue: GJLT) [Intro about the Session Chairs] Session Chair: Dr. Biju Prasad, ISRO Session Co-chair: Dr. Emma Frosina, University of Sannio, Benevento, Italy | |
| | Keynote Speech VI (30 min talk) (Intro about the Speaker) Speaker: Dr. Vijay V Patel , Outstanding Scientist & Head, National Control Law (CLAW), DRDO, India Title: Challenges in Tejas (LCA) Flight Control Design, Development and Testing | Keynote Speech VII (30 min talk) (Intro about the Speaker) Speaker: Mr. Balakrishna Padarathi , Director of Mines Safety (Mechanical), DGMS HQ Title: Future Directions in Safety Management of Hydraulically Operated Mining Machinery |
| 9.50 AM – 10.20 AM | Industry Insights I (Venue: GJLT) a) Speaker: Mr. Somendra Mishra , Volvo CE Title: Opportunity to Lead in Future Hydraulic System Technology (Towards Viksit Bharat 2047) b) Speaker: Mr. Abhishek Yadav , Sany India Title: Sany India Overview, New Product innovation, Future Plan & Challenges | |
| 10.25 AM – 11.55 AM | Technical Session III (Venue – Mechanical Engineering) | |
| | Track 7: Fluid Power in Robotics, Automation & Mining Engineering Venue: Conference Room, Mechanical Department Session Chair: Mr. Naresh Agarwal, HAL Session Co-chair: Dr. Zafar Alam, IIT (ISM) Dhanbad | Track 8: Miscellaneous - I Venue: Seminar Room, Mechanical Department Session Chair: Prof. Madanlal Chandravansi, IIT (ISM) Dhanbad Session Co-chair: Dr. Ashwini Kumar, Dean, Arka Jain University |
| 11.55 AM – 12.00 PM | TEA BREAK | GJLT DOME |
| 12.00 PM – 02.00 PM | Plenary Session IV (Venue: GJLT) [Intro about the Session Chairs] Session Chair: Mr. Sujoy Pal, Bosch Rexroth India Session Co-chair: Mr. Jugal Prasad, WIPRO | |
| | Keynote Speech VIII (30 min talk) (Intro about the Speaker) Speaker: Prof. Yasukaju Sato , Division of Systems Research, Yokohama National University, Japan Title: Development of a Highly Efficient Electro-Hydraulic Power Transmission System at the YNU Mechatronics and Fluid Power Laboratory | Keynote Speech IX (30 min talk) (Intro about the Speaker) Speaker: Prof. Katharina Schmitz , Director, Institute for Fluid Power Drives & Systems (ifas), RWTH Aachen University, Germany Title: Sustainable Fluid Power - Recent Advancements and Challenges in Mobile and Industrial Machines and Systems |
| 02.00 PM – 03.00 PM | LUNCH BREAK | GJLT DOME |
| 03.00 PM – 03.45 PM | Industry Insights II (Venue: GJLT) c) Speaker: Dr. Steffen Haack , Global CEO, Bosch Rexroth AG Title: Why Digitalization? d) Speaker: Mr. Ramesh K , Assistant General Manager, R&D, KGF, BEML Limited Title: Hydraulics in Mining Machineries – Operational Challenges & Improvement Opportunities e) Speaker: Mr. Mainak Kundu and Mr. Pritam Katjhare , TATA Hitachi Title: Some Aspects of Hydraulic Circuit Optimization in Excavators in Multiple Applications | |
| 03.45 PM – 04.30 PM | Technical Session IV (Venue – Mechanical Engineering) | |
| | Track 10: Control Engineering in Fluid Power Venue: Conference Room, Mechanical Department Session Chair: Prof. Tanmay Maity, IIT (ISM) Dhanbad Session Co-chair: Dr. Gauri Shankar, IIT (ISM) Dhanbad | Track 11: Miscellaneous - II Venue: Seminar Room, Mechanical Department Session Chair: Prof. L. A. Kumaraswamidhas, IIT (ISM) Dhanbad Session Co-chair: Dr. R. R. Das, IIT (ISM) Dhanbad |
| 04.30 PM – 05.30 PM | VALEDICTORY SESSION BEST PAPER AWARD (TRACK-WISE) | GJLT |
| 05.30 PM – 06.00 PM | VALEDICTORY HIGH TEA | GJLT DOME |

LIST OF PAPERS WITH ID AND ITS TRACK, REFERENCING & VENUE

| DAY – I (24TH JANUARY 2026, SATURDAY) 12.55 PM – 02.00 PM | | |
|---|---|--------------------------|
| Technical Session I | | |
| Paper No. | Track 1: Innovations and Advancements in Fluid Power Technologies Venue: Conference Room, Mechanical Department | Presenting Author |
| Session Chair: Mr. Suresh Kanan, Kolben Hydraulics Session Co-chair: Prof. Sanjoy Kr. Ghoshal, IIT (ISM) Dhanbad | | |
| 12 | Design Optimization Methodology for Dual-Range Hydromechanical Power Split CVT | Rituraj |
| 42 | Demonstration of Lean Techniques and Emerging Technologies in Fluid Power Systems to Simplify the Challenges of Heating Fluid | Tom Thampy |
| 94 | Mathematical Modeling and Control System Design of Variable Displacement Hydraulic Motor | Ravi Jai Prakash |
| 4 | Design and Experimental Evaluation of an Oil-to-Oil Cooling System for High-Temperature Axle Oil in Mobile Construction Machinery | Rajesh Malik |
| Paper No. | Track 2: Fluid Power in Mobile & Aerospace Industry Venue: Seminar Room, Mechanical Department | Presenting Author |
| Session Chair: Mr. Ramesh K, BEML Session Co-chair: Mr. Anjeeve George, Danfoss | | |
| 13 | Direct Drive Valve Based Electro-Hydraulic Servo Actuation System for Fighter Aircrafts: Working Principles and Challenges in Realisation | Virendra Singh Choudhary |
| 111 | Virtual Engineering Guided Design Enhancement of Pressure Compensated Flow Control Valve | Ujas Patel |
| 87 | The Modelling of Leakage Flow Past Piston-Cylinder Clearance in an Axial Piston Pump: A Comparison Across Different Wear Configurations | Neeraj Sonkar |
| 96 | Design Challenges for the Development of Flight Control Actuators for Helicopter Application | Naresh Kumar Agarwal |
| Paper No. | Track 3: Industrial Fluid Power and Systems Venue: CR 1, Mechanical Department | Presenting Author |
| Session Chair: Mr. Somendra Mishra, Volvo CE Session Co-chair: Mr. Rajesh Malik, CNH | | |
| 2 | Enhancing Industrial Automation Education through a Pneumatic–Electropneumatic & PLC Trainer | Sanjay Ghaskatta |
| 26 | Challenges & Optimisation Strategies in Design of Servo Actuator Controller for Large Flight Control Surfaces | Kumar Ankit |
| 76 | Design and Simulation of a Hydraulically Actuated Regulated Feed System for Bipropellant Rocket Engines | Shishir S Achar |
| 5 | Minimizing Throttling Losses in Hydraulic Actuators: Modeling and Control via Individual Metering | Sumit Kumar |
| DAY – I (24TH JANUARY 2026, SATURDAY) 05.20 PM – 06.30 PM | | |
| Technical Session II | | |
| Paper No. | Track 4: Hydraulic & Pneumatic Components Venue: Conference Room, Mechanical Department | Presenting Author |
| Session Chair: Mr. Ravi Jaiprakash, ADA Session Co-chair: Dr. Arun Dayal Uday, IIT (ISM) Dhanbad | | |

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| 17 | Accurate and Accelerated Determination of Laminar and Turbulent Flow Characteristic in Hydraulic Valves with the Streamline Model | Lennard Günther (online) |
| 116 | Comparing Different Topologies for Hybrid Hydraulic Transmissions for Traction Application | Mohit Bhola (online) |
| 85 | Shape Optimization of Flexural Disc Spring for Servo Valve Application | Mercian Beck |
| 89 | Predicting the Effect of Increasing Clearance in the Slipper-Swashplate Interface of Axial Piston Pumps | Jatin Yadav |
| 77 | Adaptive Hydraulic Suspension for Uneven Terrain | Ritu Ronald |
| Paper No. | Track 5: Tribology & Wear in Fluid Power Systems - I Venue: Seminar Room, Mechanical Department | Presenting Author |
| | Session Chair: Mr. Seshnath B, Walvoil Session Co-chair: Prof. Subrata Kr. Ghosh, IIT (ISM) Dhanbad | |
| 50 | Enhancing the Hydrostatic System Performances with Hydraulic Oil-Based Hybrid Nanolubricants: A Simulation-Based Study | Abhisek Halder |
| 22 | Evaluation of Energy Losses and Steady-State Characteristics in a Closed-Circuit Hydrostatic Transmission with a Vane Pump and Motor | Md. Ehtesham Hasan |
| 106 | An Experimental Study on Friction and Wear Behaviour Using Oil-Water Emulsion Containing Al ₂ O ₃ Nanoparticles | Ritesh Kumar Patel |
| 25 | Cognitive Oil Analytics for Fluid Power: An AIOT Approach to Predictive Maintenance | Harshit Agrawal |
| 100 | Fluid Transport Pipe Stress Analysis: A Practical Case Study | Anand Kumar |
| Paper No. | Track 6: Simulation, Modelling and Computational Approaches Venue: CR 1, Mechanical Department | Presenting Author |
| | Session Chair: Dr. Ankur Miglani, IIT Indore Session Co-chair: Dr. Rakesh Kumar, IIT (ISM) Dhanbad | |
| 1 | CFD Study on the Influence of Tooth Geometry and Surface Grooves in External Gear Pumps | Amit Kumar |
| 29 | A CFD Analysis of the Temperature Profile in Hydraulic Cylinders | Naveen Kumar Sain |
| 98 | Study of 1D Solute Transport Modeling with Sinusoidal Inlet Source at Boundary in the Groundwater Reservoir | Vemula Syam Prasad |
| 30 | Sensitivity of Isothermal Swirl Combustor Flow to Inlet Reynolds Number | Madan Lal Mahto |
| 118 | Comparative Study of Single Spool and Dual Spool Valve Control in Hydraulic System | Rakesh Kumar Nayak |
| DAY – II (25TH JANUARY 2026, SUNDAY) 10.25 AM – 11.55 AM Technical Session III | | |
| Paper No. | Track 7: Fluid Power in Robotics, Automation & Mining Engineering Venue: Conference Room, Mechanical Department | Presenting Author |
| | Session Chair: Mr. Naresh Agarwal, HAL Session Co-chair: Dr. Zafar Alam, IIT (ISM) Dhanbad | |
| 59 | Investigation of Path Tracking and Stability Performance in Two- and Four-Wheel Steering Autonomous Vehicles Using LQR Technique | Murshid Ansari |

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| 7 | Comparative Analysis of PID and Cascade PID Control for Position Tracking of Swing Drive Systems Using PSO and Fmincon-Based Optimization | Shubhyanshu Singh |
| 65 | Experimental and Numerical Investigation of Heat Transfer Characteristics of Radiator Using Nano Coolant | Baisalini Sethi |
| 91 | Performance Analysis of Multi-Stage Savonius Wind Turbines in Underground Mine Flow Conditions | Yashwant Kumar Singh |
| 90 | Review On Energy Recovery and Efficiency Enhancement in Power Hydraulic Systems Used in Off-Road Vehicles | Jitendra Kumar Vishwakama |
| Paper No. | Track 8: Miscellaneous - I Venue: Seminar Room, Mechanical Department | Presenting Author |
| Session Chair: Dr. Madan Lal Chandravansi, IIT (ISM) Dhanbad Session Co-chair: Dr. Ashwini Kumar, Dean, Arka Jain University | | |
| 28 | Model-Based Fault Diagnosis of Fluid Power Pitching Systems in Wind Turbines Using Bond Graphs and Analytical Redundancy Relations | Shambhu Kumar Choudhri |
| 62 | Fracture Behaviour of Infill Patterns and its Influence on Tensile Strength for PLA Specimens Fabricated via Additive Manufacturing Technique | Maniraja K |
| 92 | Structural Vibrational Characteristics of Rotating Blades: A Comparative Finite Element Study on Nickel-Based Superalloy and Ceramic Matrix Composite | Souvik Rathore |
| 35 | Fault Isolation and Fault Accommodation through Fault Tolerant Control in Coupled Tanks | Samit Kumar |
| 97 | Effect of Rock Flaw Orientation Angle on Wing Crack Initiation and Branching in Absence and Presence of Epoxy Resin Infill | Sanjeev Kumar |
| Paper No. | Track 9: Energy Efficiency & Sustainable Fluid Power Venue: CR 1, Mechanical Department | Presenting Author |
| Session Chair: Mr. Virendra Singh Choudhary, IIT (ISM) Dhanbad Session Co-chair: Dr. Tanweer Alam, IIT (ISM) Dhanbad | | |
| 64 | Integration of Fluid Power in Renewable Energy Systems: A Review of Hydraulic and Compressed-Air Storage Approaches. | Naresh Anabathula |
| 81 | Enhanced Heat Transfer in Wavy-Walled Cavities and Solar Collectors Using Graphene-Gear Oil Nanolubricants | Gaurab Kumar Ghosh |
| 47 | Optimization and Control of Digital Hydraulic Valve System in Heavy Earth-Moving Machinery | Rakesh Kumar Nayak |
| 41 | Optimizing Thermal Management in Hydraulically Operated Fan Drive Systems: A Comparative Study | Priyanshu Kumar |
| 102 | Experimental Investigation of Square Pyramidal Solar Still with Addition of Different Material at Bottom Surface | Dinesh Kumar |
| DAY – II (25TH JANUARY 2026, SUNDAY) 03.40 PM – 04.30 PM Technical Session IV | | |
| Paper No. | Track 10: Control Engineering in Fluid Power Venue: Conference Room, Mechanical Department | Presenting Author |
| Session Chair: Prof. Tanmay Maity, IIT (ISM) Dhanbad Session Co-chair: Dr. Gauri Shankar, IIT (ISM) Dhanbad | | |
| 36 | An Overwhelming Impedance Control Strategy for a Hydraulic Drive System | Nitish Kumar Sah |
| 99 | Nonlinear Position Control of Hydraulic Swing Drive System Using Backstepping Technique | Shubhyanshu Singh |
| 63 | Manual Control-Based Hydraulic System for Dual Cylinder Injection Molding Machine Using a Single Directional Control Valve | Aniket Deb Roy |

| Paper No. | Track 11: Miscellaneous - II Venue: Seminar Room, Mechanical Department | Presenting Author |
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| | Session Chair: Prof. L. A. Kumaraswamidhas, IIT (ISM) Dhanbad Session Co-chair: Dr. R. R. Das, IIT (ISM) Dhanbad | |
| 117 | Vibration Control of Defected CFRP Smart Composite Plate using Velocity & Displacement Feedback | Jayant Prakash Varun |
| 23 | Child Rescue Equipment from Abandoned Borewells | Ankur S |
| 46 | Thermo-Hydraulic Performance Analysis of a Closed-Loop Hydrostatic Drive with Efficiency Optimization | Shatrughan Thakur |
| Paper No. | Track 12: Tribology & Wear in Fluid Power Systems - II Venue: CR 1, Mechanical Department | Presenting Author |
| | Session Chair: (Retd.) Prof. P. S. Mukherjee, IIT (ISM) Dhanbad Session Co-chair: Mr. Ansuman Agarwal, Minimac Systems (P) Ltd. | |
| 109 | Automation in Waste Segregation: An Electropneumatic Approach | Zafar Alam |
| 120 | Improving Efficiency and Reliability of Closed-Circuit Hydrostatic Transmissions through Thermal Modeling | Amar Narayan |
| 60 | Enhancing Hydraulic System Performance Using Nanolubricants: A Comprehensive Review | Sonu Kumar Suman |
| 21 | Mineral, Synthetic, and Bio-Based Hydraulic Fluids: A Comprehensive Review on Performance, Compatibility, and Environmental Impact | Sasmita Singh |