SEPTEMBER 2026

BYTE STREAM



COMPUTER SCIENCE AND ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY (ISM) DHANBAD

MONTHLY NEWSLETTER

An Insight into the Department of Computer Science and Engineering, IIT (ISM)

> Good code is its own best documentation.
>
> — Steve McConnell

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SIG-Information Security: Digital Forensics for Countering Financial Fraud



The SIG- Information Security successfully organized its 2nd Lecture on Information Security on September 18, 2026, at 6:00 PM in the CSE Seminar Room. The lecture was delivered by Prof. Moinak Maiti, FirstRand Foundation Chair in Financial Data Science at the University of the Witwatersrand, South Africa, on the topic “Digital Forensics for Countering Financial Fraud.”

The session received an enthusiastic response, with strong participation from departmental
faculty members, research scholars, and UG/PG students. The event was coordinated by Prof. Tanusree Kaibartta and Prof. Arup Kumar Pal.

The organizers expressed their sincere gratitude to Prof. Moinak Maiti for delivering an insightful and inspiring lecture in physical mode and for sharing his valuable expertise and perspectives with the academic community.

Cryptography and Security Applications: Classical to Post Quantum



Prof. Arup Kumar Pal successfully coordinated and conducted the Five-Day Faculty Development Programme (FDP) on “Cryptography and Security Applications: Classical to Post Quantum”, organized by the Department of Computer Science and Engineering, IIT (ISM) Dhanbad, from 31 August to 4 September 2026, under the Information Security Education and Awareness (ISEA) Project (Phase-III), sponsored by the Ministry of Electronics and Information Technology (MeitY), Government of India. As the Programme Coordinator and Co-Principal Investigator of the ISEA Project Phase III, Prof. Arup Kumar Pal led the academic and organizational execution of the programme, which witnessed an overwhelming response from faculty members across the country.

A total of 841 faculty participants were eligible, reflecting strong nationwide participation and interest in contemporary cryptography, cybersecurity, and post-quantum security. Of these, 536 participants successfully fulfilling the prescribed requirements for certification.

The five-day programme featured a carefully structured series of 20 expert lecture sessions, covering a broad spectrum of topics, including classical cryptography, symmetric-key cryptography, elliptic-curve cryptography, blockchain security, cybersecurity threats, lattice-based post-quantum cryptography, and emerging trends in the post-quantum landscape.

The programme brought together distinguished experts from several premier national and international institutions, including IIT (ISM) Dhanbad, IIT Roorkee, IIIT Hyderabad, IIIT Kalyani, ISI Kolkata, the University of the Witwatersrand, Johannesburg, South Africa, and National Sun Yat-sen University, Taiwan.

The academic sessions progressively connected the foundations of classical cryptography with emerging security requirements in the post-quantum era, providing participants with a comprehensive understanding of the evolving cybersecurity landscape.

Overall, the FDP stands as a significant academic and capacity-building initiative under the MeitY-sponsored ISEA Project Phase III, successfully bringing together a large and diverse community of faculty participants and eminent experts from leading institutions in India and abroad.

SIG-Computing Systems hosted its Second Lecture Series on "Inside a Cyber Breach: Attack Flow, Detection & Response"



Following the success of the first lecture last month, the SIG-Computing Systems organized its second session of the Lecture Series on 30th September 2026 on the topic "Inside a Cyber Breach: Attack Flow, Detection & Response". The session was delivered by Ms. Divi Anand, Head of Cyber Defence Operations at Cyint Technologies. The talk examined how a cyber breach unfolds, using a recent attack on Bank of Baroda as a case study. In this incident, an employee's email address was targeted to gain access and exfiltrate data. Ms. Anand traced the attack from

initial access through credential compromise, privilege escalation, persistence, lateral movement, and data exfiltration. Each stage was examined from both the attackers and the defender's perspective.

The session also covered how security monitoring, endpoint and network visibility, threat intelligence, digital forensics, and incident response help defenders detect suspicious activity, build an attack timeline, and contain a breach. Particular attention was given to early detection, threat hunting, and containment. Key takeaways from the session were how breaches occur in stages, commonly originating from compromised credentials and email accounts, and how early detection and regular monitoring are critical for preventing escalation. The talk actively entaged students and faculty, with discussions on practical measures for improving organisational cyber defence.



Celebration of Teacher's Day

The Research Scholars of the Department of Computer Science and Engineering celebrated Teachers' Day 2026 on September 5 with enthusiasm and warmth to express gratitude and appreciation toward faculty members. The celebration brought together faculty members and research scholars in an engaging, informal gathering that highlighted the vital role teachers play in guiding students through their academic and research journeys. Held in a decorated classroom adorned with balloons, colorful decorations, and banners, the event offered a festive and welcoming atmosphere.





Research scholars organized several interactive activities and games for the faculty members, who participated enthusiastically. Their lively involvement added a memorable dimension to the celebration. The program also provided a platform for research scholars to express their appreciation through speeches and presentations.



A special cake-cutting ceremony was organized along with a featured photo session to capture the memorable moments before concluding on an appreciative note, with research scholars thanking the faculty for their continuous guidance, encouragement, mentorship, and support. Overall, the celebration reflected the strong collaborative and collegial spirit within the Department of Computer Science and Engineering.

SIG- Theoretical Computer Science's seminar on Planar Separator Theorem and Its Applications

The Theoretical Computer Science SIG of the CSE Department, IIT (ISM) Dhanbad, organized a seminar on "Planar Separator Theorem and its Applications" on 7 September 2026 (Monday) at 6:15 PM in the CSE Seminar Room. The session was presented by Mr. Siriprolu Charan Teja, Mr. Sidharth Pradhan, and Mr. Chilakapati Jejriel Marks, Dr. Manish Kumar, Dr. Subhrangsu Mandal, and Dr. Rahul Gangopadhyay from the CSE Department were also present.

The seminar focused on the Planar Separator Theorem, a fundamental result in algorithmic graph theory, it states that an n vertex planar graph can be divided into two roughly equal-sized subgraphs by removing a separator set of only $O(\sqrt{n})$ vertices. The students reproduced the famous proof by Lipton and Tarjan, using Breadth-First Search (BFS) along with the dual graph and the planarity of the graph.

The session also covered several applications of the theorem. The speakers discussed its use in divide-and-conquer approaches for problems such as finding shortest paths in planar graphs, as well as local search techniques used in designing approximation algorithms. The seminar concluded with the broader result of Alon, Seymour, and Thomas, showing that the O(\n) separator property also applies to graphs excluding a fixed Kt minor.

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Research-A-Thon 2.0: Into The AI-verse

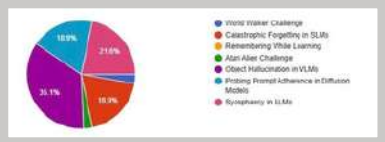


CSAI, the official Artificial Intelligence and Machine Learning division of IIT (ISM) Dhanbad, launched Research-A-Thon 2.0, its flagship recruitment hackathon, on 29 September 2026. The event invites aspiring members to engage with open research questions in contemporary AI.

The launch began with a detailed problem statement walkthrough led by CSAI Coordinator - Arsh Raza and his team. The session outlined the scope, objectives and expectations of each problem, so participants could make informed choices before committing to a direction.

Research-A-Thon 2.0 follows a mentorship-driven format. Second-year students select the problem statements they wish to work on, while third-year members of the division act as mentors. Each mentor has proposed their own problem statement, and the second-year participants choose from this pool. This lets newcomers work on real research questions with guidance from more experienced peers.

The graph here shows that most of the students selected Object Hallucinations in VLMs as their problem statement while the least selected problem statements were the World Walker Challenge and the Atari Alien Challenge. This suggests that the students are more oriented towards problems of centre of current discussion, such as model reliability and trust worthiness rather than to more game oriented or environment specific challenges.



PhDs awarded in the month of September 2026

Applicant	Supervisor	Thesis title
Pramod Kumar	Prof. Arup Kumar Pal	Design and analysis of authentication based data security protocols for securing video surveillance systems

Publications

Title: Asynchronous Dispersion with Optimal Time Complexity

Authors: Ajay D. Kshemkalyani, Manish Kumar, Anisur Rahaman Molla, Debasish Pattanayak, Gokarna Sharma

Published at: 55th International Conference on Parallel Processing (ICPP 2026), Singapore

Title: Adaptive Mixed-Precision Krylov Solvers with K-FAC Preconditioning for Federated Physics-Informed Neural Networks

Authors: Upadhyay, A. K., & Ramesh. D.

Published at: 33rd IEEE Int. Conference on High Performance Computing (HiPC 2026), Bengaluru. [Accepted for Presentation]

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