

OCTOBER 2024

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)



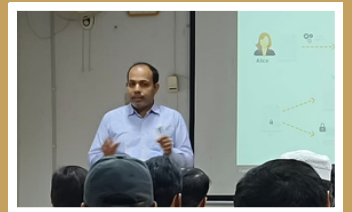
The most dangerous phrase
in the language is, 'We've
always done it this way.'

— Grace Hopper

Faculty Development Program (FDP) on "Conceptual Blockchain: An Application Portfolio" (CBC-2024)

Department of Computer Science & Engineering, IIT (ISM) Dhanbad conducted the Faculty Development Program on "Conceptual Blockchain: An Application Portfolio" from 19th Oct, 2024 to 23rd Oct, 2024, under the Ministry of Electronics and Information Technology (MeitY), Govt. of India, ISEA Project (Phase -III). The program aimed to enhance faculty knowledge regarding blockchain application and cryptography for information security. Prof. Dharavath Ramesh inaugurated the event, discussing the significance of blockchain and the associated challenges. Prof. Chiranjeev Kumar, Head of the CSE Department, welcomed the gathering and introduced the recent curriculum developments.

Prof. Arup K Pal, Prof. Dharavath Ramesh and Prof. Hari Om along with Prof. Bimal Roy and Prof. Goutam Paul, both from ISI Kolkata, conducted teaching sessions where they talked about conceptual blockchain, cryptography fundamentals in blockchain technology, cryptocurrency and related attacks, descriptive cryptography for blockchain, application centered blockchain and hash functions and blockchain. Practical laboratory sessions led by Abhishek Prasad Das(23MT0015) under the guidance of Prof. D. Ramesh were arranged to give participants hands-on practical knowledge. These sessions covered block creations and deployment, chain verification with proof of work and proof of stake and smart contract creation. Professors and scholars from different colleges and universities attended the event. To ensure their comfort, accommodations were provided. Additionally, lunch and refreshments were arranged throughout the entire five-day program.



Finally, Prof. Chiranjeev expressed gratitude to the professors and scholars for their engagement over the five-day event. He announced the Executive M.Tech Program in AI & DS and also invited participation for publishing research papers in the upcoming 6th IEEE International Conference RAIT - 2025 to be held during 6 - 8 March 2025. Prof. Chiranjeev Kumar along with Prof. Sachin Tripathi and Prof. Dharavath Ramesh distributed certificates to all participated professors and scholars. Further, during the closing ceremony, he motivated participants to pursue further studies in blockchain.

Workshop on "Harnessing Intellectual Property: Driving Innovation and Impact in Engineering Academia"

Department of Computer Science & Engineering, IIT(ISM) Dhanbad hosted a captivating workshop on "Harnessing Intellectual Property: Driving Innovation and Impact in Engineering Academia" on September 27, 2024. Renowned patent attorney, Mr. Arunava Maity, led the session, fostering an interactive environment where students and faculty members actively participated in discussions and case studies.

Through real-world examples and practical illustrations, Mr. Maity shed light on the intricacies of intellectual property, focusing on patentable works specifically in Computer Science and Engineering. His expert insights enlightened students and faculty alike, empowering them to navigate the complex landscape of innovation and intellectual property.

This workshop served as a valuable platform for the department, encouraging collaboration, creativity, and innovation.

CODESSEY 1.0

Codessey 1.0, the ultimate competitive coding contest, was organized by CodeISM under the umbrella of CSES. It was held in two rounds-the prelims and the showdown.

Since coding competitions are one of the marquee events among the CSE geeks, it garnered huge participation. The contest was held in two rounds—prelims and knockouts for three different divisions (A, B, and C). ICPC rules were followed during the prelims round whereas the lock-out mechanism was applied in knockout rounds. The lock-out mechanism made the knockouts even more interesting and competitive. Participants were silently focused, carefully reading the problem statements, and immersed in their screens as they strategized and coded, scrambling ideas and algorithms on their rough sheets as time slipped away. The thrill of competition filled the air, with each successful submission motivating everyone to tackle the next challenge, creating an intense yet electric atmosphere throughout the contest.

Mr. Abhay Gupta (21JE0011), Mr. Naman Kumar (23JE0627) and Mr. Animesh Roy (24JE0590) won the first prize in the 1st, 2nd and 3rd divisions, respectively.



Codesshe-1.0: Sparking the Next Generation of Tech Trailblazers



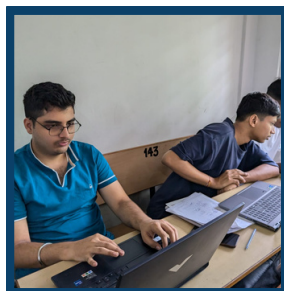
CSE Department launched Codesshe-1.0, a competitive programming contest aimed at empowering female students. Spearheaded by our respected HOD and driven by the CSES Secretary, the event was a resounding success, despite the stormy weather. Inside the CSE Dept. building, the atmosphere buzzed with excitement as teams of two, combining students from different academic years, tackled nine intricate problems in just two hours. The standard ICPC rules applied, but without penalties for wrong answers, creating a "go big or go home" vibe. Much like The Hunger Games of coding, it was all about skill, speed, and strategy. For many, the contest was a mind-expanding experience, pushing them to think in ways they never had before. The winners, Kriti Thawaria & Vanshika Singhania as first, Aadhya Jain & Yadlapalli Shalini as second and Avani Jain & Mamta Kumari as third, showcased a blend of quick thinking and technical prowess worthy of any tech giant.



Finance Skill-up Session : CSE Society Hosts An Enlightening Session On Finance and Financial Modelling With Alumnus Suresh Varma

The Computer Science and Engineering Society (CSES) recently had the privilege of hosting an exceptional session on finance and financial modelling, featuring esteemed alumnus Mr. Suresh Varma. A proud graduate of the CSE Class of 2012 and IIT (ISM) Dhanbad, Mr. Varma has been teaching financial modeling and CFA for almost 8 years now, after clearing level 3 of the CFA program. Mr. Varma was a Software Engineer at Samsung for 3 years before going for an MBA in Finance at IIM Rohtak. He also has the experience of working an year at Boutique Investment Bank . The interactive session, attended by a large number of participants despite stormy weather, was marked by Mr. Varma's unique teaching style. He seamlessly blended practical demonstrations using Excel with anecdotes from his hostel days, putting attendees at ease. The session was both engaging and informative, covering critical aspects of financial banking.

Mr. Varma also introduced attendees to the world of stock markets and investments, touching upon quant trading and personal financial decisions. His examples of successful business models, including D-Mart and Audi, provided valuable lessons.



Code Conquest

Concetto'24 (the annual Techno-Managerial fest of IIT ISM) was conducted with full fervours. Representing the department, CSE students organized Code Conquest (a coding competition to test the art of problem solving among the participants). The event was held in two rounds. The first round was primarily a coding contest involving 6 problems which needed to be solved in 2 hours. The second round was based on a hybrid model - it consisted of 4 coding problems along with a pen-paper test through which the participants were asked to solve 5 puzzles and decipher some encrypted messages. The event witnessed massive and equal participation from all the branches. After an intense mind-boggling contest, the results were churned out and the delight in the everyone's eyes was a sight to behold.

Results:

Winner: Team 3-STOOD

Leader: Pratham Todi (22JE0719)

Members: Pratyush Kumar Chaturvedi (22JE0725),

Yash Sharma (22JE1104)

Runner-Up: Team Ctrl+C

Leader: Jainendra Tripathy (21JE0417)

Members: Kriti Thawaria (21JE0485), Gaurav Bilotia (21JE0349),

Ashish Mishra (21JE0183)

Second Runner-Up: Team Tech Trinity

Leader: Kshitiz Pratap Singh (22JE0502)

Members: Ansh Shrivastava (22JE0133), Kailash Kumar (22JE0445)

Invited Talk by Padma Shri Prof. Bimal Kumar Roy

Padma Shri Prof. Bimal Kumar Roy presented an insightful talk on "e-voting" at the CSE department seminar hall on October 29, 2024. His talk addressed the critical challenges within current voting systems and demonstrated how cryptographic methods, combinatorics, and optimization techniques could tackle these issues effectively. Prof. Roy began by outlining existing vulnerabilities in the voting process and introduced "Zero Knowledge Proof" (ZKP), a cryptographic protocol that verifies individual identities without exposing sensitive credentials. He illustrated how ZKP enables one party to convince another of a statement's truth without revealing extra information, ensuring both accuracy and protection against fraudulent activities. Prof. Roy used practical examples to explain ZKP verification, emphasizing its capacity to safeguard voter identities and prevent cheating. For the vote counting mechanism, he delved into mathematical solutions involving cyclic groups, where candidates are represented by group generators and each group element represents a voter. This structure provides a secure and efficient way to manage vote tallying. Additionally, Prof. Roy proposed assigning a unique identifier to each voter by generating random numbers on a large scale, such as the population of India, framing this as a Discrete Logarithmic Problem. This method ensures that votes remain unique and verifiable throughout the process. In concluding remarks, Prof. Roy highlighted future work, focusing on fortifying the e-voting system with enhanced security protocols, underscoring the potential of cryptographic methods to transform electoral integrity. His talk provided a comprehensive view of how advanced mathematical and cryptographic approaches can bring transparency, security, and robustness to e-voting systems.



PhDs Awarded in the month of October 2024

Awardee	Supervisor	Thesis Title
Ankita Sinha	Prof Prasanta K. Jana	<i>STUDY AND DESIGN OF EFFICIENT ALGORITHMS FOR DATA CLUSTERING</i>

PhD Thesis submitted in the month of October 2024

Awardee	Supervisor	Thesis Title
Priyanka Roy	Prof Soumen Bag	<i>DEVELOPING DIFFERENT STRATEGIES TO IDENTIFY FORGERIES IN HANDWRITTEN DOCUMENTS</i>

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 Abhishek Prasad Das (23MT0015)
 Kshitiz Pratap Singh (22JE0502)
 Mirthipati Krishna Balaji (22JE0573)

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