



INDIAN INSTITUTE OF ENGINEERING  
SCIENCE AND TECHNOLOGY, SHIBPUR  
**COMPUTER SCIENCE AND TECHNOLOGY**



**ACADEMIC  
BROCHURE**

2023-2024

**ARISE AWAKE AND STOP NOT TILL THE GOAL IS REACHED**



# ABOUT THE INSTITUTE

IEST, SHIBPUR (EST. 1856) IS THE SECOND OLDEST ENGINEERING COLLEGE OF INDIA. IN MARCH 2014, THE ERSTWHILE BENGAL ENGINEERING AND SCIENCE UNIVERSITY WAS ANOINTED AS IEST, SHIBPUR, THEREBY BEING BESTOWED WITH INSTITUTE OF NATIONAL IMPORTANCE (INI). IEST, SHIBPUR IS TO BECOME ONE OF THE BEST INSTITUTES IN THE WORLD IN PROVIDING THE STATE OF THE ART MULTI-DISCIPLINARY RESEARCH AMBIENCE THAT WILL USHER INNOVATIVE WORLD-CLASS TECHNOLOGIES DEVELOPED TOWARDS REALIZING THE GOAL OF DEVELOPED INDIA. IEST, SHIBPUR FUNCTIONS AS AN INSTITUTE OF HIGHER LEARNING AND ADVANCED RESEARCH. PRIME ACTIVITIES INCLUDE CREATION AND DISSEMINATION OF KNOWLEDGE; PRODUCING ENGINEERS, SCIENTISTS AND ENTREPRENEURS OF HIGHEST QUALITY EQUIPPED WITH LATEST TECHNOLOGIES AND DEVELOPING INNOVATION TECHNOLOGY SOLUTIONS FOR THE CAUSE OF THE SOCIETY.

# ABOUT THE DEPARTMENT

The Department of Computer Science and Technology (CST) was established in 1982. It offers 4-year Undergraduate (BE), 5-year Dual-Degree (B.Tech and M.Tech), and 2-year Postgraduate (M.Tech) programmes. From 2014-15 to 2016-17, it provided a 5-year Dual-Degree Programme instead of the usual 4-year Undergraduate programme. The department maintains advanced infrastructure and facilities for research and consultancy. It received accreditation from the National Board of Accreditation (NBA) and 9000 certification in 1999-2000, and was recognized as a DST-FIST sponsored department in 2004. In 2012, it was ranked 10th nationwide by Silicon India.

## MISSION

To provide the students with a firm foundation of both the theory and practice of Computer Science and Technology through a comprehensive undergraduate and post-graduate curricula, and to strengthen creativity, nurture innovation, and develop the ability to carry out research and solve real-world problems.

## VISION

To be recognized globally for excellence in academic programs and innovative, applied and socially relevant research.



# UNDERGRADUATE CUURRICULUM

## 3RD SEMESTER

Discrete Structures  
Digital Logic  
Data Structures  
Signals and Systems

## 4TH SEMESTER

Design and Analysis of  
Algorithm  
Computer Architecture and  
Organization – I  
Programming Paradigms  
Theory of Computation  
Introduction to Data Science

## 5TH SEMESTER

Microprocessor Based Systems  
Database Management  
Systems  
Computer Architecture and  
Organization – II  
Graph Algorithms  
Soft Computing

## 6TH SEMESTER

Operating Systems  
Data Communication and  
Computer Network  
Software Engineering  
Information Security and  
Cryptography  
Nature Inspired Algorithms  
Computer In-Memory  
Architecture

## 7TH SEMESTER

Compiler Design  
Machine Learning  
Mobile Computing  
Digital Image Processing

## 8TH SEMESTER

Artificial Intelligence  
Reconfigurable Computing  
Quantum Computing

# POSTGRADUATE CUURRICULUM

## 1ST SEMESTER

Advanced Algorithms  
Principles of Programming  
Languages  
Mathematics for Computer  
Science  
Advanced Computer  
Architecture  
High Performance Computing  
Machine Learning  
Information and Coding Theory  
VLSI System Design  
Image Processing and Pattern  
Recognition  
Sessional on Advanced  
Computer Architecture  
Sessional on High Performance  
Computing  
Logics for Computer Science

## 2ND SEMESTER

Advanced Operating Systems  
Real Time Systems  
Advanced Database  
Management System  
Information Retrieval  
Advanced Networking  
Distributed Systems  
Natural Language Processing  
IoT and Cloud Computing  
Quantum Computing  
Big Data Analytics  
Information Security and  
Cryptography  
Computer Control of Industrial  
Processes



# FACULTY



## **ABHIK MUKHERJEE**

Associate Professor

Area of Work: Estimation and Control applied to Systems Biology, Online social media analysis, Control applications for energy systems



## **APURBA SARKAR**

*Head of the Department*

Area of Work: Computational Geometry, Image Processing, Shape Analysis, Shape Classification, Text Summarization, Graph Compression



## **SULATA MITRA**

Associate Professor

Area of Work: Ad-hoc network, Multi-Homed mobile network, Mobile computing



## **ASHISH KUMAR LAYEK**

Assistant Professor

Area of Work: Networking Pattern Recognition, Computer Vision and Digital Image Processing



## **ASIT KUMAR DAS**

Professor

Area of Work: Machine Learning, Big Data Analytics, Data Mining and Pattern Recognition



## **SIPRA DAS BIT**

Professor

Area of Work: Internet of Things (IoT), Mobile Computing, Wireless Sensor Network, Delay Tolerant Network



## **BIPLAB K. SIKDAR**

Professor

Area of Work: Cellular Automata, Computer Architecture



## **JAYA SIL**

Professor

Area of Work: Bio-Informatics, Machine Learning, Image Processing and Computer Vision

# FACULTY



## **MALAY KULE**

Assistant Professor

Area of Work: Defect Tolerance of Nanoscale Crossbar Circuits, Cryptology, Hardware Security, Securing Social Network



## **MANAS HIRA**

Associate Professor

Area of Work: Image Generation and Recognition - A Grammatical Approach, Circuit Verification using Temporal Logic



## **NIRNAY GHOSH**

Assistant Professor

Area of Work: Internet of Things (IoT) - Applications, Security, and System Integration, Blockchain and its applications, Federated Learning



## **SEKHAR MANDAL**

Professor

Area of Work: Machine Learning, Pattern Recognition, Image Processing



## **SURAJEET GHOSH**

Associate Professor

Area of Work: Machine Learning Based Optimization for IoT Protocol, IPv6 Routing Protocol for Low-Power, Machine Learning for Embedded Systems



## **SAMIT BISWAS**

Assistant Professor

Area of Work: Document Image Analysis, Image Processing and Pattern Recognition, Machine-based Translationm Social Network Analysis



## **TAMAL PAL**

Assistant Professor

Area of Work: Games Programming, AIML(Artificial Intelligence and Machine Learning), Multimedia security

# LABORATORIES



Soft Computing Laboratory



Hardware Laboratory (Microprocessor)



Hardware Laboratory 2



M.Tech Final Year Laboratory



Research Scholars Laboratory

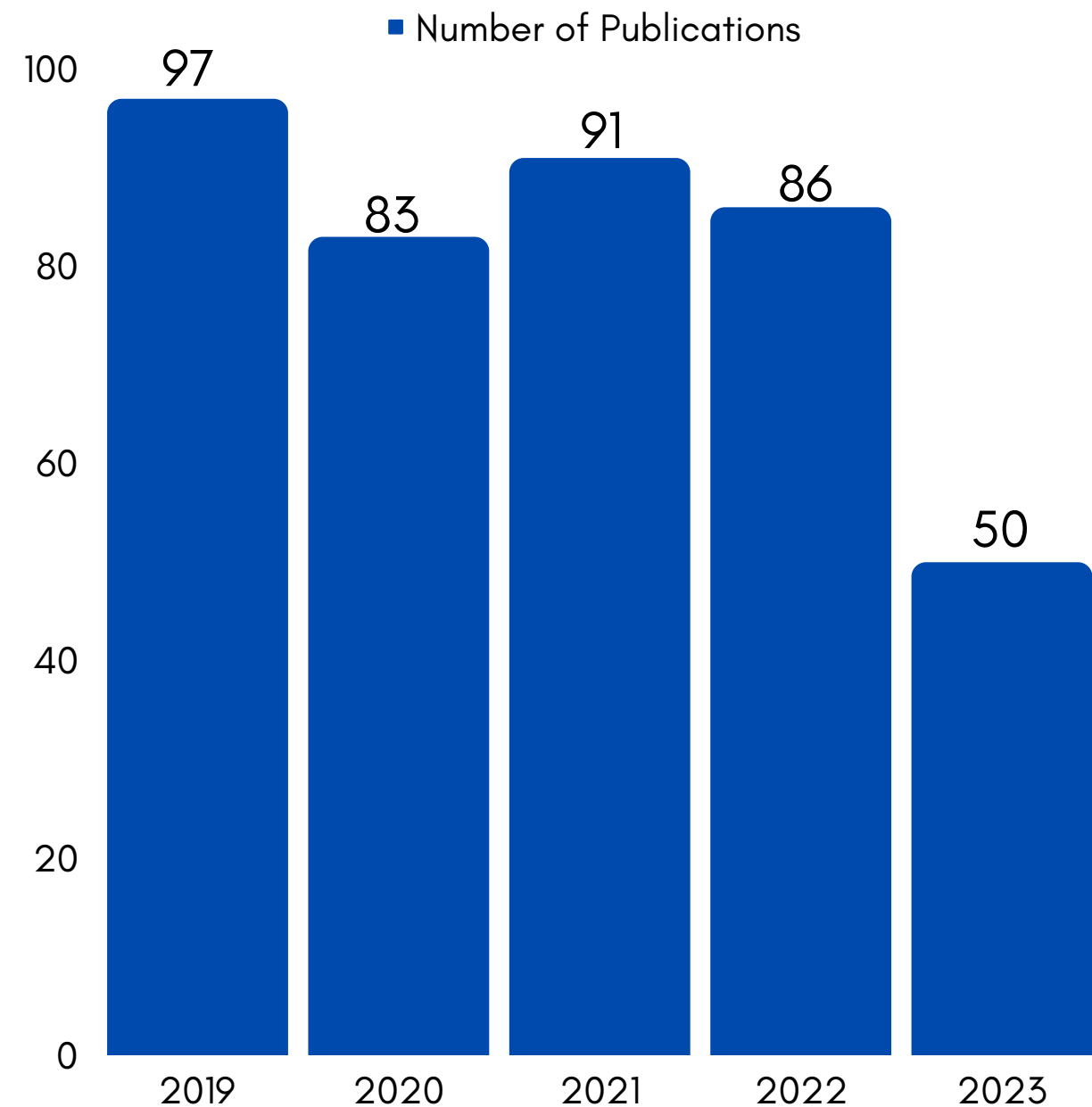


Software Laboratory



JRF/SRF Laboratory

# PUBLICATIONS



1. Arpita Dutta, Samit Biswas, Amit Kumar Das, EmoComicNet: A multi-task model for comic emotion recognition, Pattern Recognition, 2024
2. Isha Ganguly; Jaya Sil; Nandita Sengupta, Nonparametric method of topic identification using granularity concept and graph-based modeling, 35(2), 1055-1075, Neural Computing and Applications, 2023
3. N. Das, S. Basu and S. Das Bit, OlaRout: Optimal DropBox Deployment based Cluster Routing for Post Disaster Information Exchange in a Smart City, 16, 876-899, Peer-to-Peer Networking and Applications, Springer, 2023
4. Kishalay Bairagi, Sulata Mitra and Uma Bhattacharya, Efficient Approaches to Optimize Energy Consumption in 3D Wireless Video Sensor Network under the Coverage and Connectivity Constraints, Annals of Telecommunications, Springer, 2023
5. J. Sengupta, S. Ruj and S. Das Bit, FairShare: Blockchain Enabled Fair, Accountable and Secure Data Sharing for Industrial IoT, 20, 2929-2941, IEEE Transactions on Network and Service Management (TNSM), 2023
6. Tamal Pal and Sipra Das Bit, An improved low-overhead secure image compression over wireless multimedia sensor network, 132, 1049-1081, Wireless Personal Communications, Springer, 2023
7. Siddhartha Mallick, Jayanta Paul, Jaya Sil, Response Fusion Attention U-ConvNext for accurate segmentation of optic disc and optic cup, 559, 1-11, Neurocomputing, 2023
8. Arnab Dey, Samit Biswas, Laith Abualigah, Umpire's Signal Recognition in Cricket using an Attention based DCGRU Network, International Journal of Engineering, 2023

# ACHIEVEMENTS

## Student achievements

- In recent years, multiple teams consistently qualified for ICPC regionals, featuring notable individuals like Anish De (2023), Srijit Mondal (2024), Raj Shah (2025), Biprodeep Bera (2025), Sanmai Yamagonda (2025), and Ashish Reddy (2025).
- Anish De has achieved a top 1% ranking in Leetcode.
- Rahul Halder (2023) successfully cracked GSoc in 2021.
- The department's students have excelled in competitions like Flipkart GRID, with finalists in both 2021 and 2023.
- Aritra Bandopadhyay (2025) secured a prestigious DAAD scholarship in 2024.
- Several students have gained admission to prestigious institutions worldwide, exemplified by Rupkatha Hira's acceptance to the University of Pennsylvania.
- Amrita Kesh (2024) is also a recipient of an IET Scholarship.
- Mr. Udayan Subuddhi, B.Tech. CST, Batch of 2018 of IEST, Shibpur has secured AIR-19 in UPSC CSE 2022 exam and has been allotted the Indian Forest Services (IFS)

## MAJOR RECRUITERS



Deutsche Bank



BNY MELLON



# STUDENT ACTIVITIES

## ASCE

The Academic Society of Computer Engineers (ASCE), the student society of the department, is the focal point of co-curricular activities. ASCE initiates various programs yearly to enhance student development and campus life, including organizing the annual departmental fest 'Revelation,' hosting freshmen welcomes and farewells, and conducting seminars and tech talks on diverse topics. ASCE is an indispensable part of student activities within and beyond the department.



## REVELATION


Revelation, the annual departmental technical fest of the Department of Computer Science and Technology, spans three days filled with events including hackathons, coding contests, CTFs, ML challenges, tech quizzes, and more. Drawing a large number of student participants, the fest not only promotes interest in computer science and its applications but also fosters stronger student bonds and extracurricular skills.





## MORE INFORMATION

 <https://www.iiests.ac.in/IIEST/AcaUnitDetails/CST>

 Apurba Sarkar  
Head of the Dept.  
hod@cs.iiests.ac.in