INFORMATION BROCHURE

for admissions to

Industrial Training, Research Training, and Short-Term Courses

Academic Year: 2026-2027

ISO 9001 2015 CERTIFIED

MSME सूक्ष्म, लघु एवं मध्यम उद्यम MICRO, SMALL & MEDIUM ENTERPRISES

इन्द्रप्रस्थ सूचना विज्ञान संस्थान दिल्ली

Indraprastha Institute of Information Sciences Delhi

(A Unit of Indraprastha Institute of Information Sciences Private Limited)

Registered by Ministry of Corporate Affairs, Government of India

Corporate identity number of the company is U73100DL2022PTC395444

Visit us at www.iiisc.in |WhatsApp Number +91-+91-9650989833

Vision and Mission

Vision

Our vision is to be a distinguished institution that advances research, education, and training in information sciences, empowering engineers to create meaningful societal impact in an ever-evolving world.

Mission

- To provide comprehensive industrial training in Information Systems, Software Development, Artificial Intelligence, and Machine Learning.
- To prepare students to undertake high-quality and impactful research.
- To establish an International Journal of Engineering and Applied Computing

A list of students who have successfully completed Industrial Training at IIIS Private Limited is available at the following link:

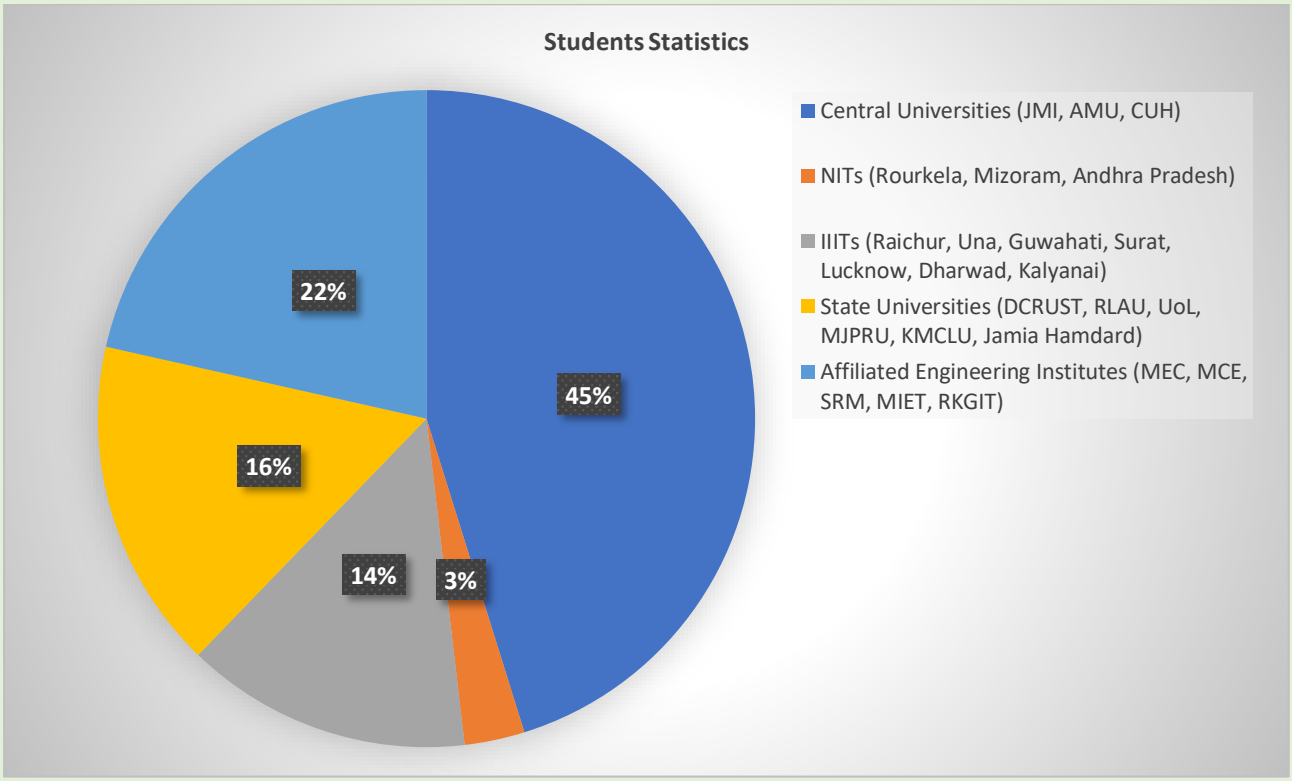
https://www.iiisc.in/student22-23.html

1. About IIIS Delhi

The Indraprastha Institute of Information Sciences Delhi (IIIS Delhi) is a unit of Indraprastha Institute of Information Sciences Private Limited (IIIS Private Limited), New Delhi, India. The IIIS Private Limited was registered by **Ministry of Corporate Affairs, Government of India**, on March 24, 2022. The permanent office of IIIS Delhi was inaugurated on September 28, 2023 by **Professor Chaudhary Wali Mohammad**, *former Professor of Mathematics and Computing*, Faculty of Engineering and Technology, Jamia Millia Islamia (JMI), New Delhi-110025, India.

Office of **IIIS Delhi** was Inaugurated by **Prof. Chaudhary Wali Mohammad**, JMI, New Delhi

The objective of the institute is to provide the **Post-Doctoral Training** to the Ph.D. graduates and **Industrial Training** / **Research Training** for those who are pursuing M. Tech. / B.Tech./ MCA / BCA / BSc / MSc / Diploma Engineering in the domain of Computer Engineering, Information Technology, Electronics Engineering, and Electrical Engineering. Students who are working at the intersection of Information Sciences and Civil Engineering /Mechanical Engineering/ Management Science can also join the Postdoctoral and Industrial / Research Training at IIIS Delhi. There are four divisions in IIIS Delhi: (1) Division of Research and Development, (2) Division of Communications and Information Technology, (3) Division of Electrical and Electronics Engineering, and (4) Division of Interdisciplinary Sciences. In addition to this, there is an Indraprastha Research Laboratory (IRL) in IIIS Delhi, which is dedicated to research and development activities in different areas of science and engineering. Since its inception, IIIS Private Limited, New Delhi, has provided hands-on software development training to over 300 students through intensive 4- to 10-week internship and industrial training programs, offered in both offline and online modes.



Central Universities: JMI: Jamia Millia Islamia, A Central University, New Delhi, AMU: Aligarh Muslim University Aligarh, and CUH: Central University of Haryana, Haryana.
National Institute of Technology (NIT): NIT Rourkela, NIT, Mizoram, and NIT Andhra Pradesh.
Indian Institute of Information Technology (IIIT): IIIT Raichur, IIIT Una, IIIT Guwahati, IIIT Surat, IIIT Lucknow, IIIT Dharwad, and IIIT Kalyanai.
State Universities: DCRUST: Deenbandhu Chhotu Ram University of Science and Technology Murthal, Sonipat, **RLAU:** Dr. Rammanohar Lohia Avadh University. Ayodhya, **UoL:** University of Lucknow, Lucknow, **MJPRU:** MJP Rohilkhand University, Bareilly, **KMCLU:** Khwaja Moinuddin Chishti Language University, Lucknow, and **Jamia Hamdard:** Hamdard University, Delhi
Affiliated Engineering Institutes: MEC: Mewat Engineering College Nuh, Mewat, Haryana, **MCE:** Motihari College of Engineering, Motihari, Bihar, **SRM:** SRM Institute of Science and Technology Kattankulathur, Tamil Nadu, **MIET:** Meerut Institute of Engineering and Technology Meerut, Uttar Pradesh, and **RKGIT:** Raj Kumar Goel Institute of Technology Ghaziabad, Uttar Pradesh

1.1 Events Sponsored by IIIS Delhi

In February 2025, IIIS Delhi sponsored one of the key events organized by the Department of Computer Engineering at Jamia Millia Islamia (JMI), New Delhi—W3B: The AI and Blockchain Society and Google Developer Groups. During the Genesis fest, Mr. Adnan Khan, Coordinator of Industrial Training in Software and Web Development at IIIS Delhi, showcased the institute's diverse range of courses to visitors and participants. Additionally, IIIS Delhi extended its support to the Jamia Premier League by sponsoring the cricket team representing the Department of University Polytechnic at JMI.

CERTIFICATE

OF APPRECIATION

THIS CERTIFICATE RECOGNIZES THE CONTRIBUTION OF

IIIS DELHI

This award recognizes the exceptional support and sponsorship provided to the cricket team of University Polytechnic (POLYGUN), Jamia Millia Islamia, New Delhi, throughout the Jamia Premier League (JPL - 2025) cricket series, organized by the Games and Sports Department at Nawab Mansur Ali Khan Pataudi (NMAKP) Sports Complex, Jamia Millia Islamia, New Delhi, from 05-04-2025 to 08-05-2025.

We *greatly* appreciate your valuable contribution so far.

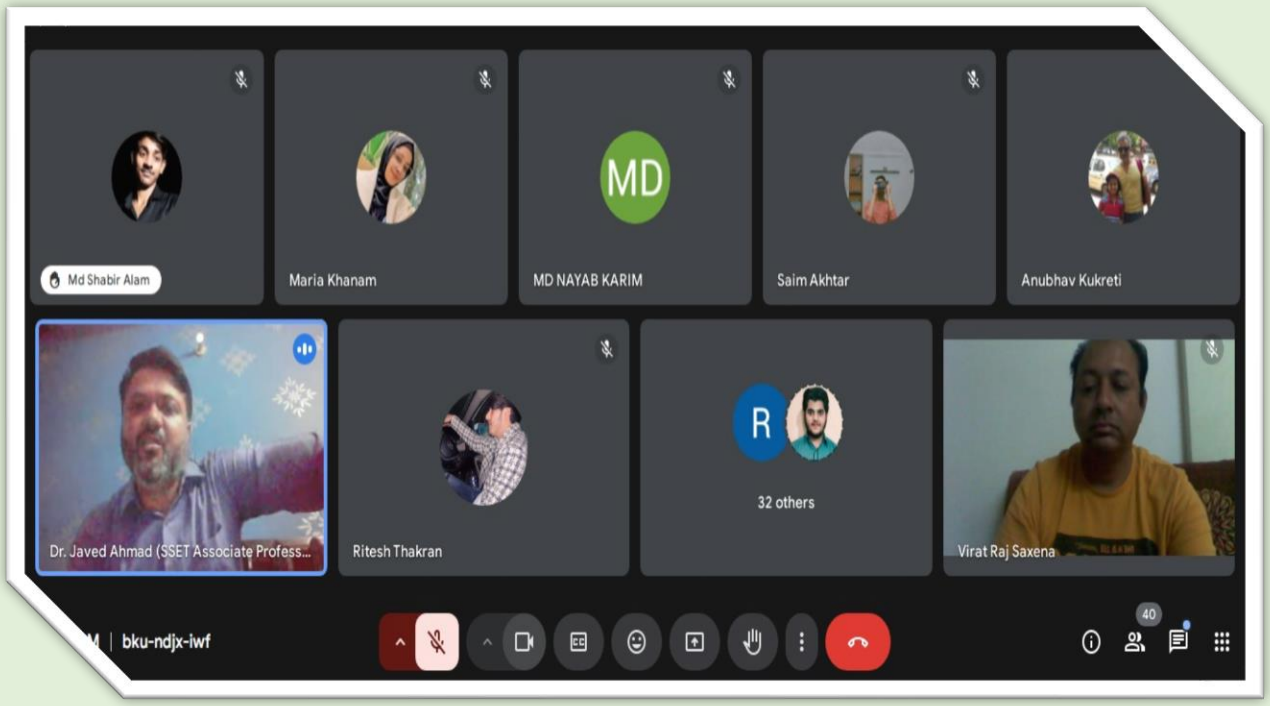
PRINCIPAL
(UNIVERSITY POLYTECHNIC)

TREASURER
(POLYGUN)

Er. Adnan Khan, Coordinator (Training) at IIIS Delhi received certificate of appreciation from the Department of University Polytechnic, **Jamia Millia Islamia**, New Delhi, India.

1.2 Workshop(s) Organized by IIIS Delhi

The First Workshop on Research Paper Writing (FWRPW-2025) was successfully organized by IIIS Delhi, on April 20, 2025.The workshop aimed to equip participants with the knowledge and skills needed to effectively plan, write, and refine academic research papers. Key topics covered during the session included: (a) Strategies for reading and understanding research papers; (b) Essential components of a research paper; (c) Categorization of research within specific fields of interest; (d) Conducting a Systematic Literature Review (SLR), including formulating research questions, developing search strings, distinguishing between primary and secondary studies, selecting research databases, analysing findings, and identifying research gaps; (e) The role of mind mapping in generating research ideas; (f) Techniques for reviewing research papers; (g) The importance of reviewers' comments in improving paper quality; (h) Differences between paid and unpaid journals, as well as SCI- and Scopus-indexed journals; and (i) The role of Artificial Intelligence in enhancing the research writing process.



The workshop saw participation from over 50 students representing various prestigious institutions, including: Jamia Millia Islamia, New Delhi; University of Delhi, Delhi; NIT Silchar, Assam; Jamia Hamdard, New Delhi; Sushant University, Gurugram, Haryana; J.C Bose University of Science and Technology (JCBUST), Faridabad, Haryana; Institute of Engineering and Rural Technology (IERT) Prayagraj, Uttar Pradesh; Maharaja Agrasen Institute of Technology (MAIT), New Delhi. Out of the 50 students who enrolled, only 28 successfully completed the FWRPW-2025 workshop.

2. Divisions and Research Laboratory

2.1 Division of Research and Development

Division of Research and Development, IIIS Delhi, is running training and short terms courses on research paper writing and its techniques. The students of "Short-Term Course on Research paper Writing (STC-RPW)" have presented and published their work in the Scopus Indexed conferences such as 3rd International Conference on Power Engineering and Intelligent System-2025, Springer, Organized by **National Institute of Technology Uttarakhand**, India and Technically Sponsored by Soft-Computing Research Society (SCRC), India; and 6th International Conference on Data Science and Applications-2025 Organized by **Malaviya National Institute of Technology Jaipur** and Technically Sponsored by SCRC, India.

Dr. Akash Tayal
(Consultant, IIIS Delhi)
Ph.D. IIT Delhi, India
Area of interest: Decision Science, System Dynamics, Machine Learning, and Image Processing
E-mail: akash_tayal786@gmail.com
(from California, USA)

2.2 Division of Communications and Information Technology

Division of Communications and Information Technology (CIT), IIIS Delhi, is running training and short terms courses on software development, web development, and artificial intelligence. Following people are working in the division of CIT, IIIS Delhi, India.

Mr. Mohsin Wali Khan
(Software Developer, IIIS Delhi)
B.Tech. Computer Engineering, JMI, New Delhi, India
M.Tech. (2025-2027; Pursuing), JMI, New Delhi, India
Area of interest: Information System Development and Artificial Intelligence
E-mail: mohsinwali.khan@gmail.com
Mobile: +91-9310332470

Mr. Syed Saheem Kirmani
(Training and Placement Officer)
M.Sc. Physics, JMI, New Delhi, India
Area of Interest: Project Management and Marketing
E-mail: training2025@iiisc.in
Mobile: 91-9999035966

2.3 Indraprastha Research Laboratory

The aim of Indraprastha Research Laboratory (IRL) is to provide the research guidance to B.Tech./M.Tech. /Ph.D. students. A Patent was published by the members of the IRL, IIIS Delhi in September 2022 in Indian Patent Journal on the topic entitled "A System for Eliciting the Ranking Order of Large Set of Requirements under Fuzzy Environment for the Development of Secure Software". Research team members of IRL, IIIS Delhi, in collaboration with top universities of India, have published their research work in the following Journals, Conferences, and Edited Books:

[1]. **A Fuzzy Function Point Method for Software Cost Estimation by Intertwining Functional Requirements with Cybersecurity and Privacy,** 6th International Conference on Computational Intelligence**,** organized by the **Sardar Vallabhbhai National Institute of Technology Surat**, India, and Technically Sponsored by Soft-Computing Research Society, India, December 27-28, 2025.

[2]. **Eliciting the Ranking Order of Functional Requirements of Software using Fuzzy TOPSIS without Conflictions among Non-Functional Requirements,** 6th International Conference on Data Science and Applications, organized by **Malaviya National Institute of Technology Jaipur**, India and Technically Sponsored by Soft-Computing Research Society, India, July 16-18, 2025.

[3]. **Analyzing the Ranking Order of Requirements of an Information System using Various Normalization Procedures of Fuzzy TOPSIS Method**, 3rd International Conference on Power Engineering and Intelligent System, Organized by **National Institute of Technology Uttarakhand**, India and Technically Sponsored by Soft-Computing Research Society, India, March 8-9, 2025.

[4]. **A Goal-Oriented Methodology for Eliciting the Requirements of an Information System,** 3rd International Conference on Power Engineering and Intelligent System, Organized by **National Institute of Technology Uttarakhand,** India and Technically Sponsored by Soft-Computing Research Society, India, March 8-9, 2025.

[5]. **A Mathematical Model for the Selection of Software Requirements Elicitation Techniques**," IEEE 14th International Conference on Cloud Computing, Data Science & Engineering, pp. 130-135, 18-19 January 2024, Organized by **Amity University, Noida**, Uttar Pradesh, India.

[6]. **Diagnosis and Analysis of Multiple Sclerosis Disease using Artificial Intelligence**, Studies in Computational Intelligence, Vol. 1133, pp. 125-150, Springer, February 14, 2024.

[7]. **Ranking of Requirements of an Information System using Fuzzy TOPSIS with Incomplete Preference Relations,** 6th International Conference on Information System and management Science, December 2023.

[8]. **A Method for Designing the Requirements of an Information System using Patterns under Fuzzy Environment**, International Conference on Innovations in Computational Intelligence and Computer Vision, Springer, pp. 437-444, Lecture Notes in Networks and Systems, Vol. 680, Organized by **Manipal University Jaipur, Rajasthan**, India, November 24-25, 2022.

2.3.1 Visiting Ph.D. Scholar at IRL, IIIS Delhi

In 2022, **Mr. Virat Raj Saxena,** one of the Ph.D. scholars of Mangalayatan University, Aligarh, Uttar Pradesh, India, joined the IRL of IIIS Private Limited, as a **visiting Ph.D. scholar**. He has worked on the topic entitled "An Investigation into Software Requirements Prioritization using Fuzzy Based Multi-Criteria Decision-Making Methods," with **Dr. Azra Parveen,** Director, IIIS Private Limited, New Delhi, India. In 2025, he has submitted his Ph.D. Thesis in Mangalayatan University, Aligarh. Mr. Saxena received his M. Tech. in Computer Science and Engineering from the Department of Computer Engineering, Aligarh Muslim University, Aligarh, Uttar Pradesh. Mr. Saxena has presented two conference papers in International Conferences sponsored by IEEE and Springer.

List of Coordinators and Instructors, IIIS Delhi

Mr. Adnan Khan
Diploma in Computer Engineering (2023), JMI, New Delhi
B.Tech. CSE (Pursuing), Dr. A.P.J. Abdul Kalam Technical University
Uttar Pradesh, Lucknow, Uttar Pradesh, India
Coordinator & Instructor-Software Development and Data Structures
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Mr. Rohit Maurya
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B.S. Data Science, Indian Institute of Technology Madras, India
Coordinator & Instructor -AI & ML
IIIS Delhi, A unit of IIIS Private Limited
Contact No: +91-9335043250
Email: rohitmauryac6h@gmail.com |training2025@iiisc.in

3. Invited / Expert Lectures

Since its inception, following faculty members, researchers, and software engineers have delivered expert lectures or examined the trainees of IIIS Delhi:

1. **Prof. Chaudhary Wali Mohammad**, Jamia Millia Islamia, New Delhi, India
2. **Dr. Vikram Singh**, National Institute of Technology Kurukshetra, India
3. **Dr. Zeba Shamsi,** National Institute of Technology Silchar, India
4. **Dr. Kamlesh Rana,** Director, Bharat Institute of Technology, Meerut, India
5. **Prof. Vinish Kumar**, Raj Kumar Goel Institute of Technology, Ghaziabad, India
6. **Er. Mohd. Sulaiman,** Software Analyst, Bank of America, India
7. **Dr. Amit Mishra,** Jaypee Institute of Information Technology, Noida, India
8. **Dr. Mrityunjay Singh,** Indian Institute of Information Technology, Una, India
9. **Er. Firdausia Fatima**, Strategic Cloud Engineer, Google, Bangalore, India
10. **Dr. Nayan Kumar Sarkar,** Galgotias University, Greater Noida, India
11. **Prof. Farooq Husain**, Shivdan Singh Institute of Technology and Management, Aligarh, India
12. **Prof. Akash Tayal**, Indira Gandhi Delhi Technical University for Women, Delhi, India
13. **Prof. Suman Rani**, BSAITM, Faridabad, India
14. **Dr. Mohd. Shahid**, Mewat Engineering College, Nuh, Haryana, India
15. **Er. Sarwat Firoz**, former Software Engineer at Infosys, Jaipur, India
16. **Prof. Virat Raj Saxena**, Raj Kumar Goel Institute of Technology, Ghaziabad, India
17. **Dr. Javed Ahmad**, Sharda University, Greater Noida, India
18. **Dr. Mohd. Arif**, Galgotia's University Greater Noida, India
19. **Dr. Mohd. Nazim,** Noida Institute of Engineering and Technology, Greater Noida, India
20. **Mr. Soham Chaudhuri**, SRM- IST Kattankulathur, India
21. **Dr. Farhana Mariyam**, Sushant University, Gurugram, India
22. **Mr. Sandeep Singh,** MJP Rohilkhand University, Bareilly, India
23. **Dr. Faiz Akram**, Jamia Millia Islamia, New Delhi, India
24. **Dr. Shafaque Aziz,** Jamia Millia Islamia, New Delhi, India (Now at GEC, Samastipur, Bihar)
25. **Er. Kajal Singh**, World College of Technology and Management, Gurgaon, India
26. **Dr. Shahnawaz Ahmad**, Bennett University, Greater Noida, India
27. **Dr. Tanveer Hassan**, ABES Engineering College, Ghaziabad, India
28. **Ms. Sabiya Parveen**, Jamia Millia Islamia, New Delhi, India
29. **Mr. Adnan Khan,** Jamia Millia Islamia, New Delhi, India
30. **Mr. Danish Naseem,** Jamia Millia Islamia, New Delhi, India
31. **Dr. Mohd. Sadiq**, Jamia Millia Islamia, New Delhi, India

4. Training and Short-Term Courses

We are running following short-term courses for Diploma, UG, and PG students. After the completion of the short-term courses, students can join **Four-Week FREE Internship / Training** at IIIS Delhi.

a) Short-Term Course-Training on Information Technology and Digital Skills
b) Short-Term Course-Training on Software Development
c) Short-Term Course-Training on Artificial Intelligence and Soft Computing
d) Short-Term Course-Training on Artificial Intelligence and Machine Learning
e) Short-Term Course-Training on Data Structure using C
f) Short-Term Course-Training on Research Paper Writing
g) Short-Term Course-Training on any subject of Computer Science and Engineering like Compiler Design, Numerical Methods, Computer Networks, Programming using C language, etc, can be started as per the need of the candidate.

Students can submit their CV at **training2025@iiisc.in**, as a part of their application for joining the training and short-term courses.

5. Syllabus

As per the **National Education Policy (NEP) 2020**, Government of India, every learner is expected to acquire digital literacy, computational thinking, and technology-enabled problem-solving skills, irrespective of discipline. The training programmes designed at IIIS Delhi is to equip **Diploma, UG, and PG** students with essential Information Technology (IT) and programming skills.

5.1 Short-Term Course-Training on Information Technology and Digital Skills

(especially designed for Diploma first year and UG first year students of all branches)

Duration: 4 to 8 Week
Course Fee (Offline): INR 6500
Course Fee (Online): INR 1750
Training Fee: Nil

At the end of this course-training, the students will be able to:

- **TO1:** Use office automation tools for academic and professional tasks
- **TO2:** Apply basic programming concepts using Python/C (any one)
- **TO3:** Design simple static web pages using HTML and CSS
- **TO4:** Use databases for basic data storage and retrieval

Module 1: Introduction to IT and Digital Fundamentals

- Overview of Information Technology
- Components of Computer Systems, Introduction to Hardware and Software
- Software Engineering and Software Development
- Operating Systems (Windows/Linux-Basics)
- Files and Folder Management
- Internet Concepts and Services; Basics of IP addressing system
- Introduction to Open-Source Software

Module 2: Office Automation and Productivity Tools

- Word Processing (Reports, formatting, tables)
- Spreadsheets (Formulas, charts, basic data analysis)
- Presentation tools (Slides, animation, charts)
- Email etiquette and professional communication
- Cloud tools (Google drive/OneDrive-basics)

Module 3: Computer Programming Fundamentals

- Problem solving approach
- Algorithms, flowcharts, variables, and data types
- Input/output statements and Conditional statements
- Looping concepts and simple programs related to engineering applications

Module 4: Web Technologies

- Introduction to Web Technologies
- HTML structure and basics tags
- Text formatting, images, lists, and tables
- Hyperlinks and Introduction to CSS

Module 5: Database Basics and Cyber Security

- Introduction to Database, Database concepts and applications
- Basic SQL commands (SELECT, INSERT)
- Cyber security threats
- Cyber laws, ethics, and digital safety
- Data privacy and intellectual property rights (IPR-basics)

5.2 Short Term Course-Training on Software Development

Duration: 4 to 8 Week
Course Fee (Offline): INR 8500
Course Fee (Online): INR 2750
Training Fee: Nil

At the end of this course-training, the students will be able to:

- **TO1:** Understand the difference between program and software
- **TO2:** Identify the stakeholders of the system-to-be
- **TO3:** Apply different types of software requirements elicitation techniques
- **TO3:** Model the functional and non-functional requirements
- **TO4:** Analyse the software requirements using various multi-criteria decision-making techniques like Analytic Hierarchy Process (AHP), Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS), PROMETHEE, etc.
- **TO5:** Implement requirements using programming languages like HTML/CSS, PHP, MySQL

Module 1: Requirements Engineering

- Difference between Software Engineering and Requirements Engineering (RE)
- RE processes: Requirements elicitation, requirements modeling, requirements analysis, requirements verification and validation, and requirements management,

- Modeling of requirements of an information system using UML, i.e., Use-case and Class-diagram;
- Stakeholders' analysis and its importance. Identification of stakeholders based on roles and responsibilities.
- Traditional method: Analysis of existing documents, Interview, Questionnaire, Survey, Goal-oriented methods, group elicitation method
- Need of goal-oriented requirements elicitation methods and its applications
- Types of requirements: Functional requirements and non-functional requirements
- Software requirements selection problem
- Need of Multicriteria decision making methods during the analysis of software requirements.

Module 2: Introduction to HTML and PHP Programming

- **Introduction to HTML**: HTML editors, HTML formatting tags, HTML Headings and Paragraphs tags, linking of web pages, Mathematical tags, and Introduction to CSS, HTML table, ordered list and un-ordered list, forms, and frame tags, HTML Graphics and Media, how to design a website? Responsive web-design, and how to design a navigation bar of a web site?
- **Introduction to PHP**: Need of PHP, features of PHP, Rules for PHP variables, Data types, Operators, Classes and Objects, Constructor and Destructor, Inheritance, Abstract Class, Interface.

5.3 Short-Term Course-Training on Artificial Intelligence and Soft Computing

At the end of this course-training, the students will be able to:

Duration: 8 to 12 Week
Course Fee (Offline): INR 9500
Course Fee (Online): INR 3500
Training Fee: Nil

- **TO1:** Classify the definitions of Artificial Intelligence (AI)
- **TO2:** Understand informed and uninformed search
- **TO3:** Solve AI problems
- **TO4:** Understand first-order predicate logic
- **TO5:** Apply soft computing techniques in different areas of Engineering and Science

Module 1: Introduction to Artificial Intelligence

- Definition of AI, Foundations of AI, History of AI,
- Agents and environments, the structure of agents;
- Solving problems by searching: problem solving agents, Toy problems, real world problem
- Searching for solutions, Uninformed search techniques: breadth-first search, uniform cost search, Depth first search, Iterative deepening depth first search, Heuristic search techniques: A* algorithm, Local search algorithms and Optimization problems: Hill climbing search algorithms;
- First order logic: Syntax and semantics of first order logic, Using first order logic; Inference in first order logic:

- Propositional vs First order inference, Forward chaining and backward chaining, and resolution.

Module 2: Introduction to Soft Computing

- Different components of soft computing: Fuzzy Logic, Genetic Algorithm, Rough-set theory, and Neural network, Different sources of uncertainty: Randomness and vagueness
- Fuzzy logic, Membership functions, main features of a fuzzy set membership functions, i.e., core, support, and boundary
- Difference between crisp set and fuzzy set; Some numerical examples; Normal fuzzy set, subnormal fuzzy set, convex fuzzy set, etc.; types of fuzzy numbers
- Operations on fuzzy sets: Cartesian product, Max-min composition on fuzzy relations, Types of fuzzy numbers: Triangular fuzzy number, Trapezoidal fuzzy number, Operations on fuzzy numbers, Methods for fuzzification and defuzzification
- Multi-criteria decision making (MCDM) methods: Analytic Hierarchy Process (AHP), Technique for Order of Preference by Similarity to Ideal Solutions (TOPSIS); Genetic Algorithm (GA): procedure for solving a problem using GA
- Introduction to Neural network and its applications

5.4 Short-Term Course-Training on Artificial Intelligence and Machine Learning

At the end of this course-training, the students will be able to:

Duration: 10 to 12 Week
Course Fee (Offline): INR 15000
Course Fee (Online): INR 4750
Training Fee: Nil

- **TO1:** Understand the AI and Machine Learning (ML)
- **TO2:** Differentiate among various types of ML algorithm
- **TO3:** Apply different AI&ML tools
- **TO4:** Understand neural network
- **TO5:** Apply AI & ML to solve real world problems

Module 1: Introduction to Artificial Intelligence and Machine Learning

Introduction to Artificial Intelligence and Machine Learning (ML), Types of ML algorithms: Supervised, Unsupervised, and Reinforcement learning, Real world applications, ML-workflows and life cycle, Tools: Python, Jupyter Notebook, Scikit-learn, and Google Colab

Module 2: Python for Machine Learning

Introduction to Python: Variables, Control structure, Functions; Basics of OOP concepts, Data handling with Numpy, Data manipulation with Pandas, Data visualization with Matplotlib and Seaborn, and Hands on: Exploratory analysis of dataset

Module 3: Statistics and Linear Algebra for Machine Learning

Descriptive statistics: Mean, Median, Variance, Skewness, and Kurtosis, Probability theory: Distributions, Bayes theorem, Linear algebra basics: vectors, matrices, and dot product, Correlation and covariance, Hands on: Simulations with Numpy

Module 4: Data Preprocessing and Feature Engineering

Data cleaning: Handling missing and duplicate values, Encoding categorical variables, Feature scaling: standardization and normalization, Feature selection techniques, and Hands on: Preprocessing dataset (e.g. Titanic)

Module 5: Supervised Learning: Regression Models

Linear regression (simple and multiple), Polynomial regression, Regularization: Lasso and ridge, Evaluation metrics: MSE, RMSE, and R2, and Hands on: Predicting house prices

Module 6: Supervised Learning Classification Models

Logistic regression, K-nearest neighbors, Decision trees, Random Forest, Naïve Bayes, Support Vector Machine, Model evaluation: Accuracy, Precision, Recall, FI-score, Confusion matrix, and ROC-AUC, and Hands on: Project based on classification (e.g. disease prediction)

Module 7: Model Evaluation and Optimization

Cross validation (K-fold), Grid search and random search, Hyperparameter tuning, Bias-variance trade-off, and Underfitting vs overfitting

Module 8: Introduction to Unsupervised Learning

Clustering: K-means, Hierarchical clustering, DBSCAN, Dimensionality reduction: PCA, Anomaly detection, Hands on: Customer segmentation project

Module 9: Ensemble Learning

Bagging and boosting concepts, Random Forest revisited, Gradient Boosting, AdaBoost, and XGBoost, Hands on: Comparison of ensemble models

Module 10: Introduction to Neural Networks

Basics of artificial neural networks, Perceptron, and activation functions, Introduction to Deep Learning libraries (Keras /Tensor Flow), Hands on: Simple neural network for classification

Module 11: Project work

Each student will work on a 4-week project (Choose any one):

- Predicting stock prices
- Fraud detection
- Sentiment analysis
- Churn prediction

5.5 Short-Term Course-Training on Data Structures using C / Python

Duration: 8 to 9 Week
Course Fee (Offline): INR 8500
Course Fee (Online): INR 2750
Training Fee: Nil

At the end of this course-training, the students will be able to:

- **TO1:** Differentiate between data types and data structures
- **TO2:** Classify linear and non-linear data structures
- **TO3:** Implement various data structures using C / Python language
- **TO4:** Search and sort the data using various sorting methods and their implementation
- **TO5:** Apply tree and graph to solve real world problems

Module 1: Data Structure

- Concepts of data type and data structures,
- Array and pointer variables: 1-D array, 2-D array
- View of array and pointers at implementation level
- Concept of dynamic variable and implementation
- Introduction to Stacks and Queues
- Introduction to Pointers, self-referential Structures
- Dynamic memory allocation
- Study of linked list, Circular list, doubly linked list, Stack, queue
- Sequential and linked list implementation of stack and queue
- Introduction to complexity, Concept of divide and conquer
- Sorting and searching algorithms and their efficiency consideration
- Sorting and searching algorithms: Insertion sort, bubble sort, selection sort, quick sort, linear search, binary search algorithm
- Non-linear data structure: Graph, tree: binary tree, complete binary tree, binary search tree;
- Tree traversal algorithms: inorder, preorder, postorder traversal
- graph traversal algorithms: depth first search, breadth first search

Module 2: Implementation of Data Structure using C

- Basics of C /Python programming language
- Implementation of various data structures using C / Python language

5.6 Short-Term Course-Training on Research Paper Writing

Duration: 12 to 16 Week
Course Fee (UG/PG): INR 12, 500
Course Fee (Ph.D. students): INR 30,000
(Common for Online and Offline Mode)

At the end of this course-training, the students will be able to:

- **TO1:** Differentiate between technical report and research paper
- **TO2:** Understand the structure of a research paper
- **TO3:** Perform a systematic literature review
- **TO4:** Identify research gaps in the literature
- **TO5:** Write a research paper for the submission in Scopus indexed International Conferences

The division of Research and Development of IIIS Delhi is running Short- Term Course on Research Paper Writing of 60 hours durations. The training in research studies is exclusively designed for those who are studying in B.Tech./M. Tech./MCA/Ph.D. and want to publish their ideas in some reputed International Conferences sponsored by IEEE/Springer/Taylor and Francis/ScienceDirect and Journals. This course trains the students with knowledge and skills to publish their ideas in Tier-1 and Tier 2 conferences, and other reputed conferences. The course will be conducted in online/offline mode from **6:30 PM to 7:30 PM** on all working days and on Saturday and Sunday from **10:00 AM to 12: 30 PM**, as it seeks to provide you with an opportunity to quickly enhance your research skills without interfering your academic / professional activities. The course is divided into two modules:

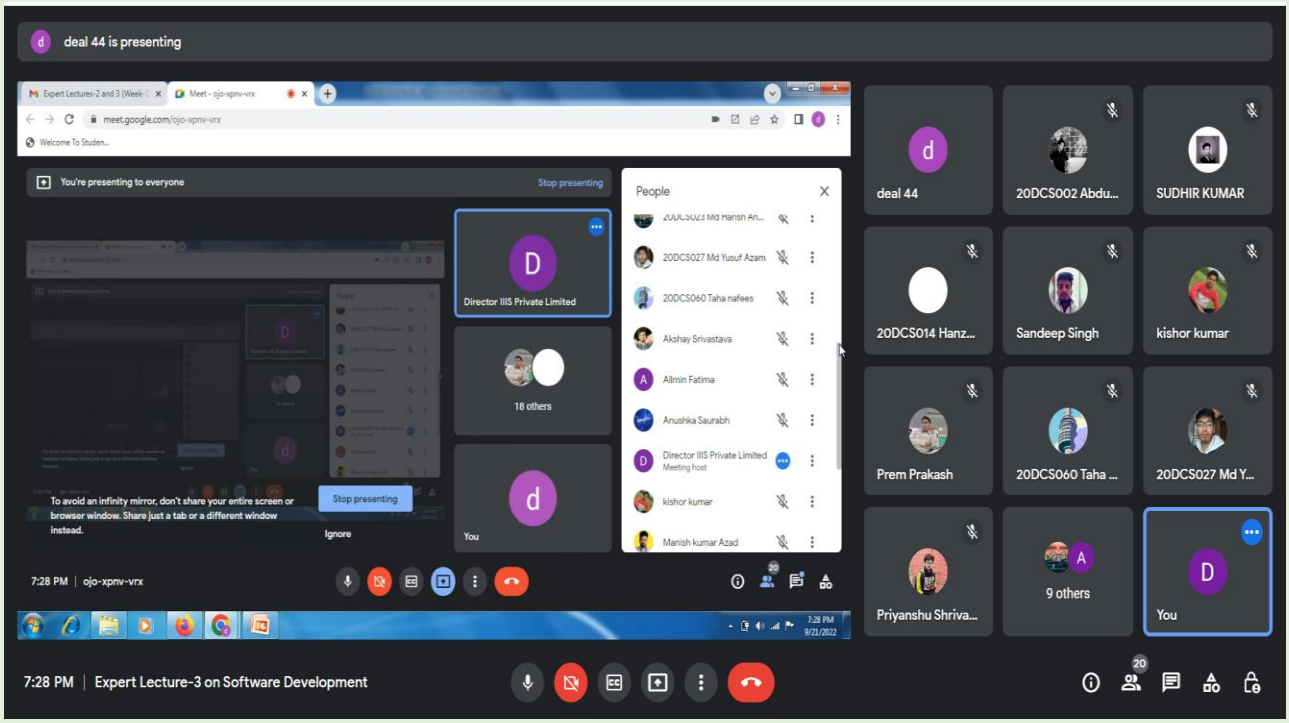
Module-1 (10 Hours): Research Process

In the first module, students will learn the basics of research process which includes the following: How to read a research paper? Components of a research paper, Classification of research in your area of interest, how to perform a systematic literature review (SLR)? An SLR includes a set of research questions, search string, difference between primary studies and secondary studies, Search databases, and analysis of research questions, finally show the research gaps in the literature, Importance of mind map for generating an idea for a research paper, how to review a research paper?, Importance of comments by the reviewers, and Difference between Paid and Unpaid Journals, SCI and Scopus indexed Journals.

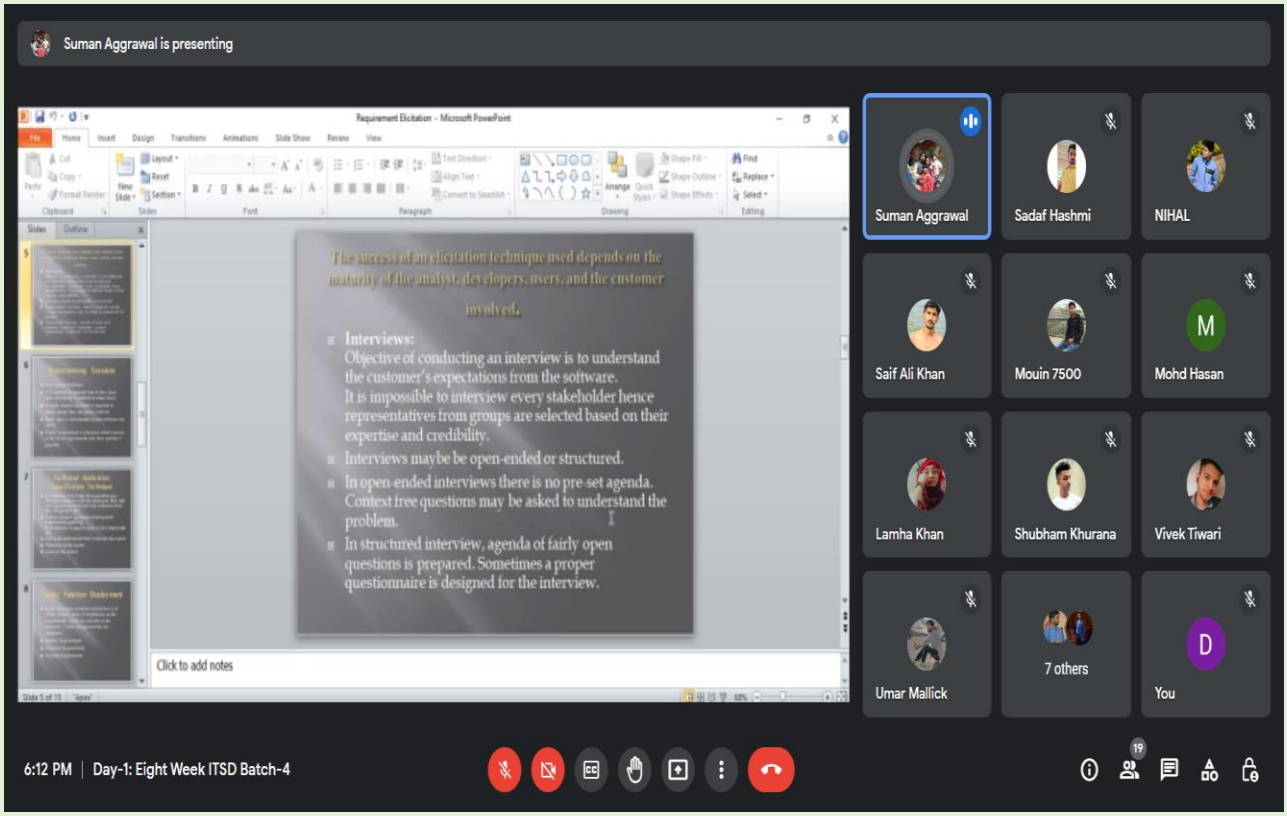
Module-2 (50 Hours): Research Paper Writing

In the second module, students will choose any one topic according to their choice and will write a research paper. After the completion of research paper, students will submit the research paper in any Scopus indexed International Conference for the presentation and publication.

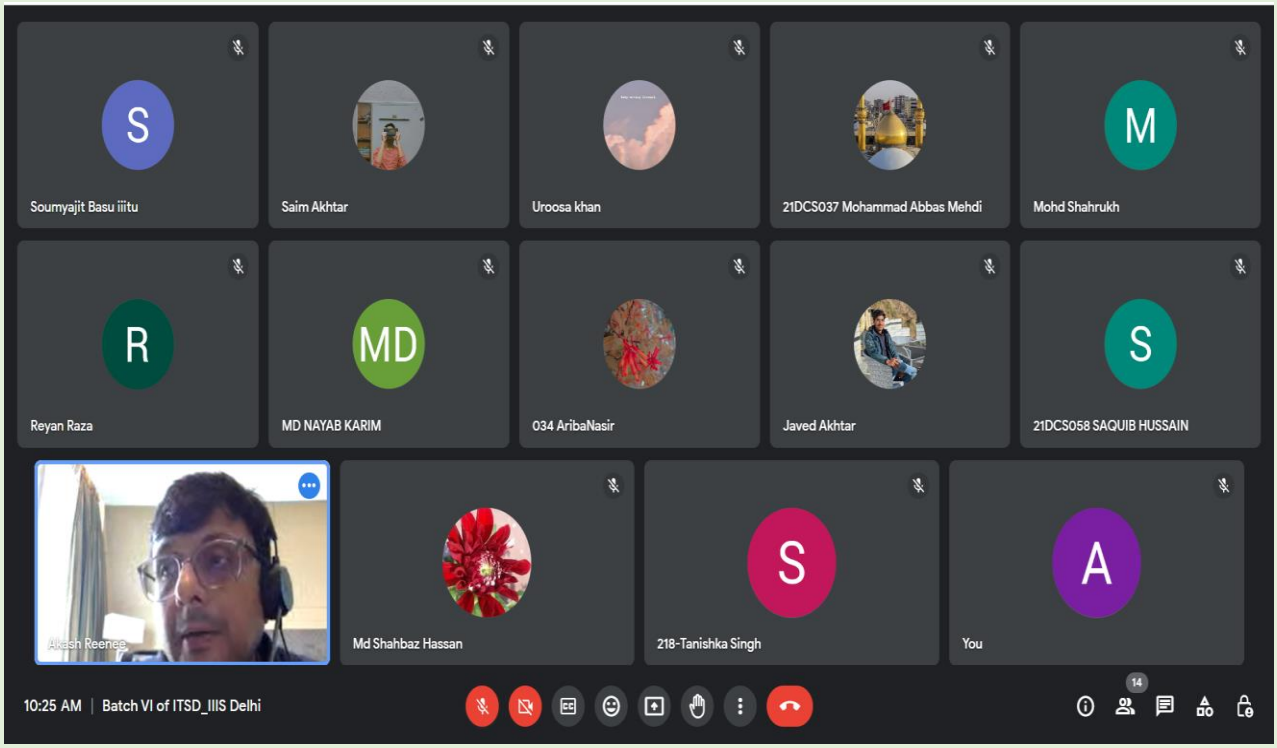
6. Expert Lectures Delivered by Industry Professionals and Academic Scholars (Online / Offline)



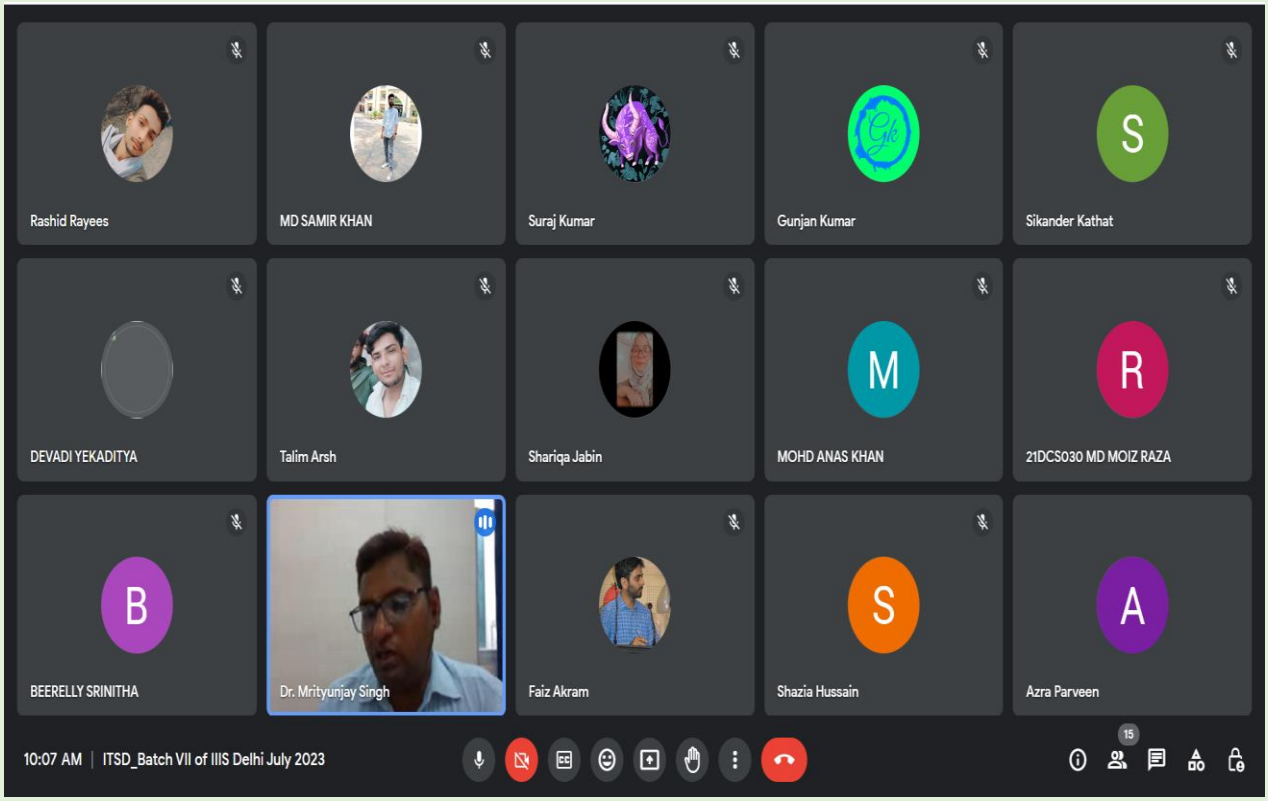
Dr. Virat Raj Saxena, RKGIT, Ghaziabad, discussed about the basics of software development



Dr. Suman Rani, BSAITM, Faridabad, delivered an expert lecture on software requirements elicitation methods



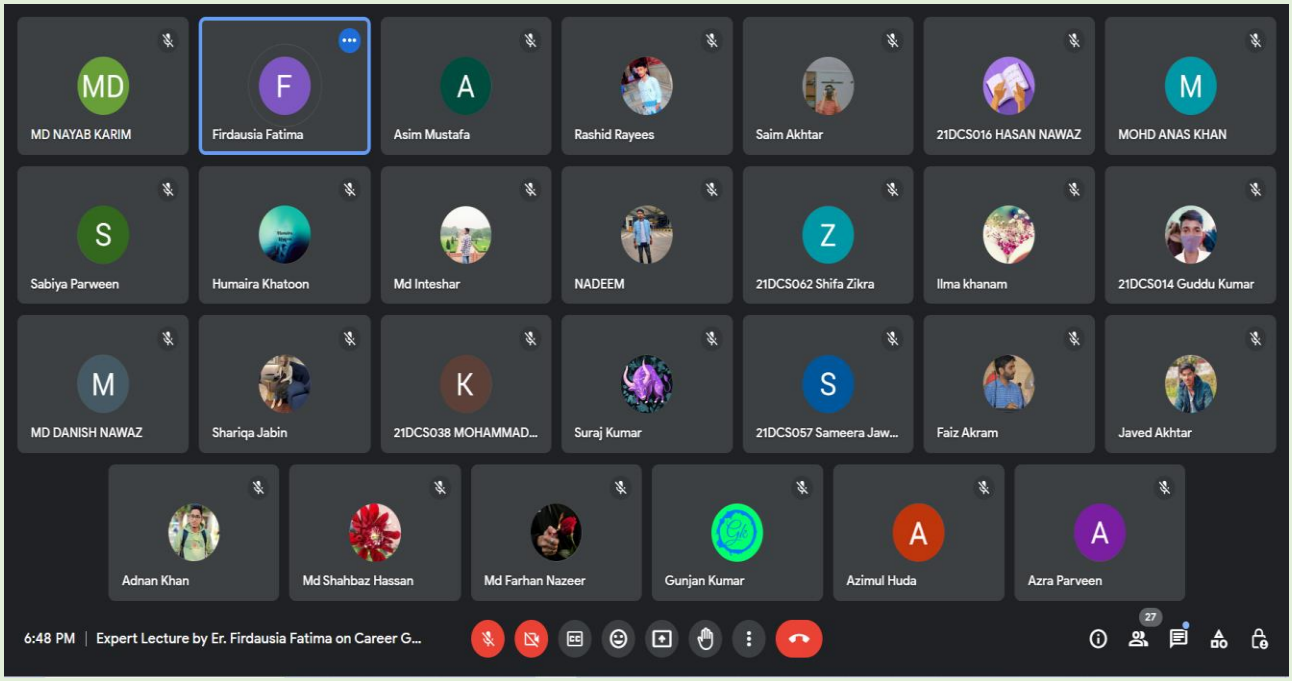
Prof. Akash Tayal, IGDTUW, Delhi, delivered an expert lecture on Metaheuristic algorithms to Batch 6 trainees of IIIS Delhi



Dr. Mrityunjay Singh, Assistant Professor-CSE, IIIT Una, delivered an expert lecture on Dataspace and its Applications in Software Development to Batch 7 trainees of IIIS Delhi.

Trainees are discussing their project work with the training project supervisor

Trainees at IIIS Delhi



Er. Firdausia Fatima, from Google, India, delivered an expert lecture on Career Guidance to the trainees of Batch 6 and Batch 7 (Online Mode)

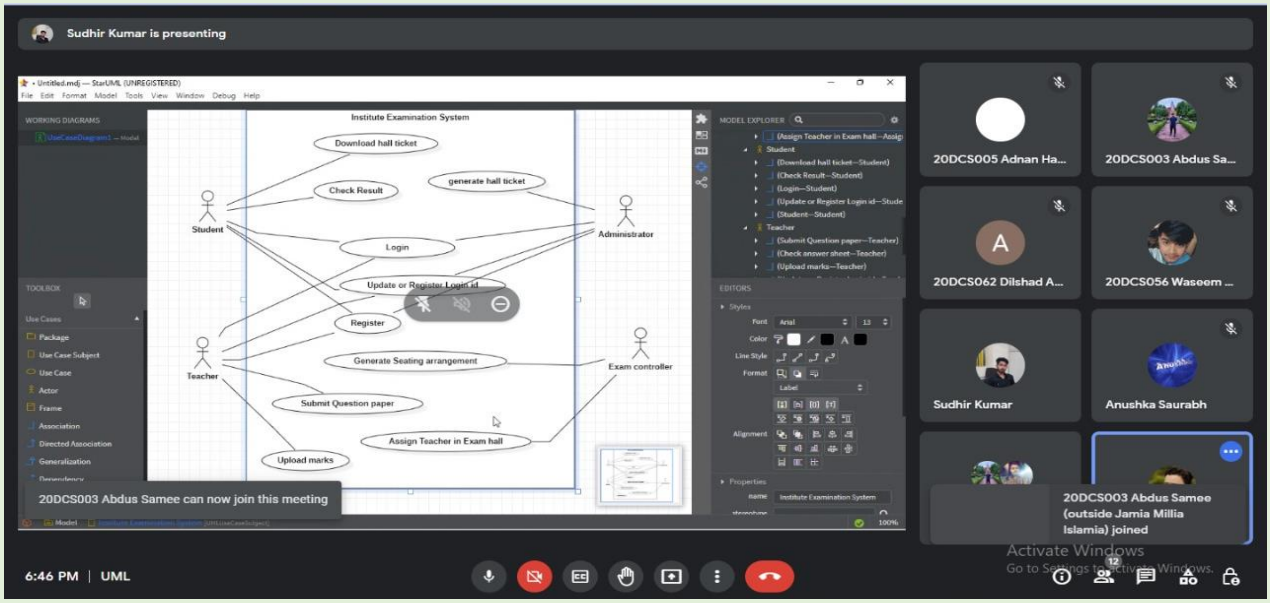
Dr. Shahnawaz Ahmad, Assistant Professor at School of Computer Science Engineering and Technology, Bennett University, Greater Noida, Uttar Pradesh, India, delivered an expert lecture on "Software Requirements Elicitation using Goal-Oriented Method" in the valedictory function of Batch-14 (Offline Mode)

Er. Imran Ahmad Siddiqui, General Manager of Mehar Gulf International Business LLC, Wilayat Salalah, Dhofar Governorate, Oman, delivered an expert lecture emphasizing the importance of training during Diploma and Degree programmes. He also presented certificates to the trainees of Batch 14-B and Batch 17 on August 23, 2025.

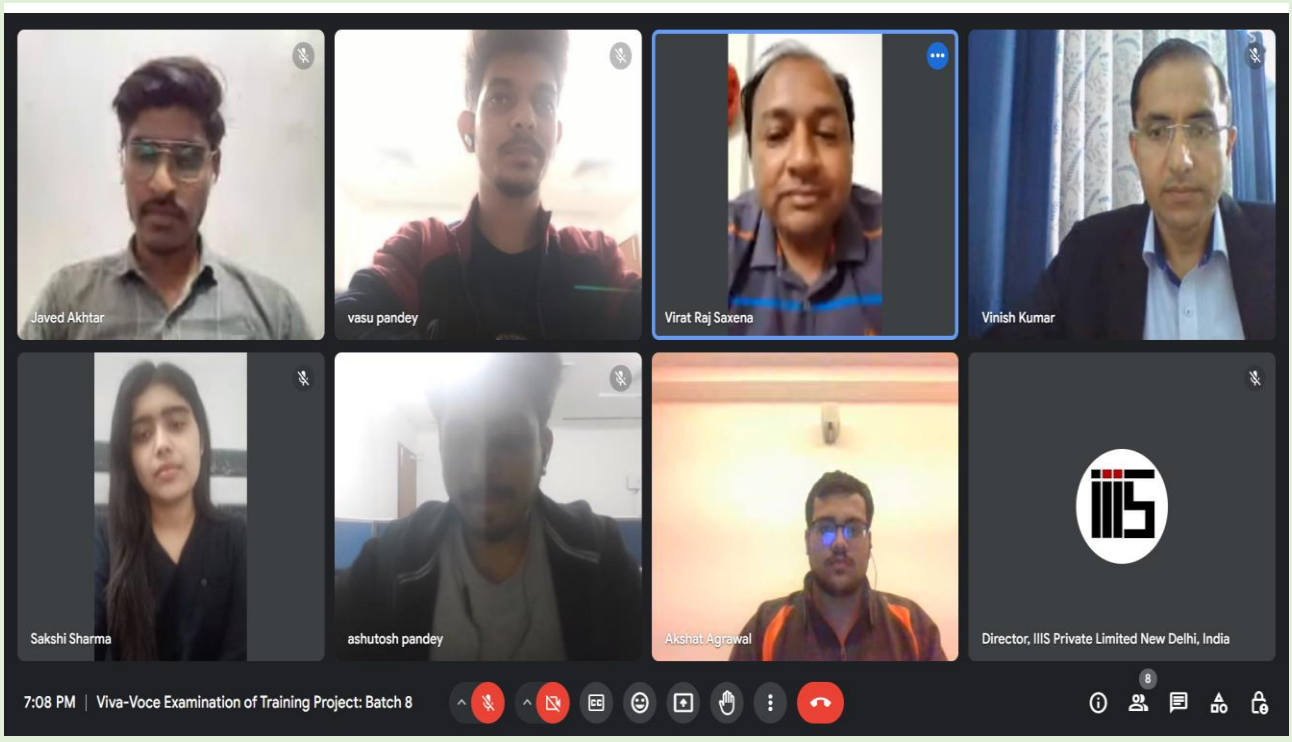
Dr. Nayan Kumar Sarkar, Assistant Professor at Galgotias University, Greater Noida, Uttar Pradesh, India, delivered an expert lecture titled "An Insight into Artificial Intelligence and Machine Learning" as part of the Two-Month Summer Internship/Industrial Training Programme on Information Technology in Management (SI-IT-ITM) held on June 12, 2025.

7. Examination and Evaluation of Training Projects

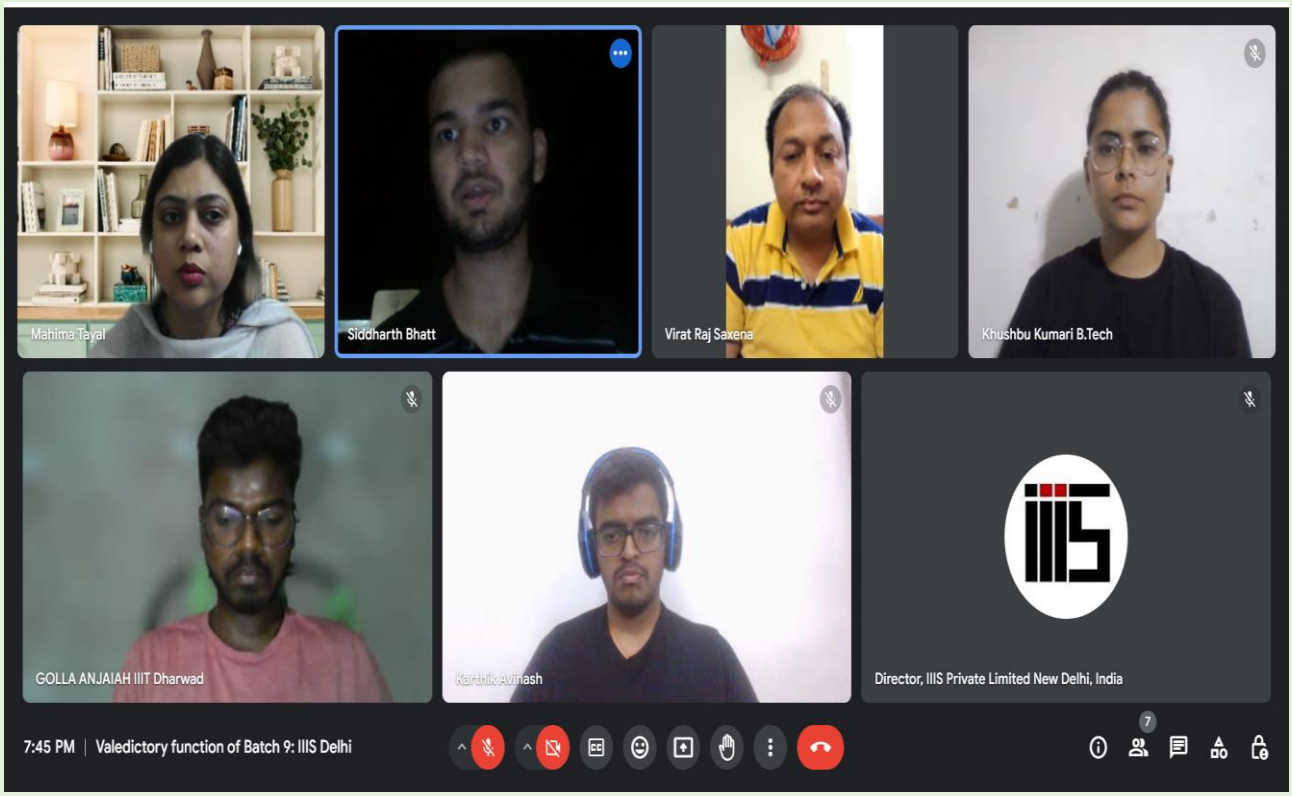
Evaluation of training projects is an important component for the successful completion of industrial training on software development. Trainees are evaluated by an external expert who are working in software industry or in an institution /university.



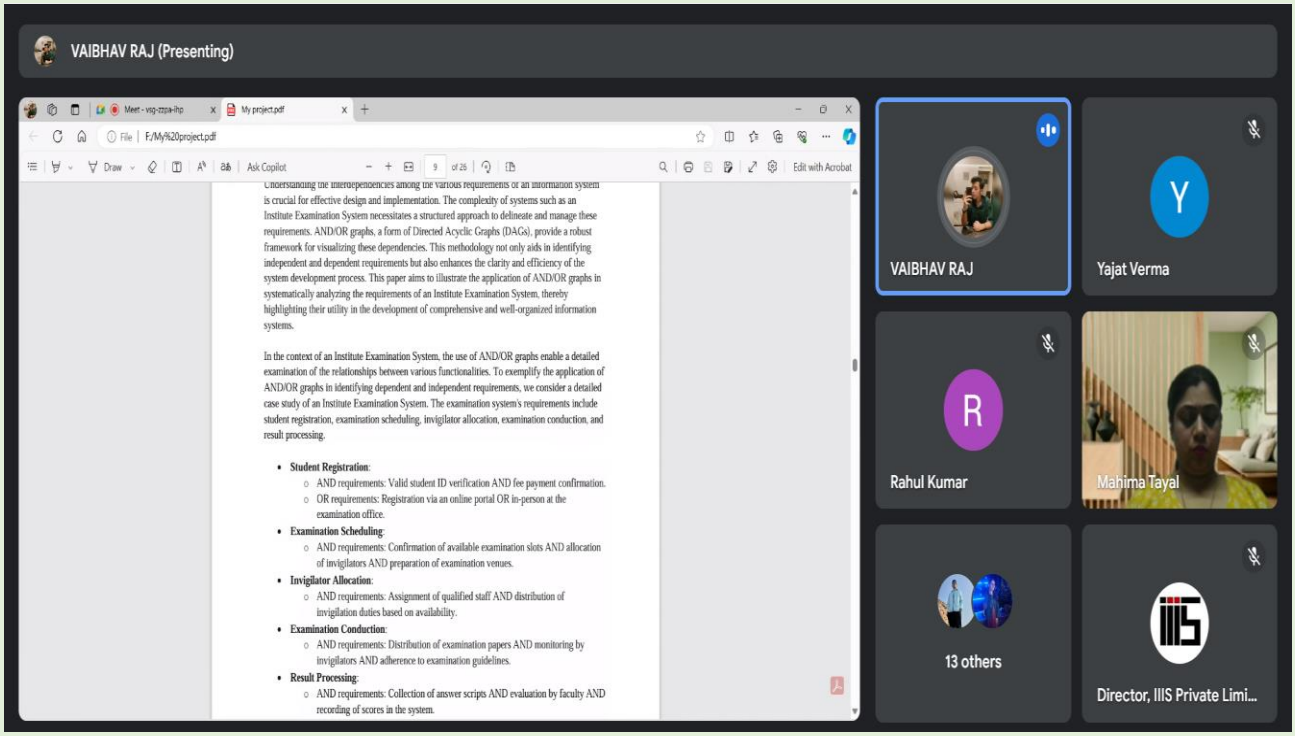
Discussion on training projects with experts- Batch 2 (Online Mode)



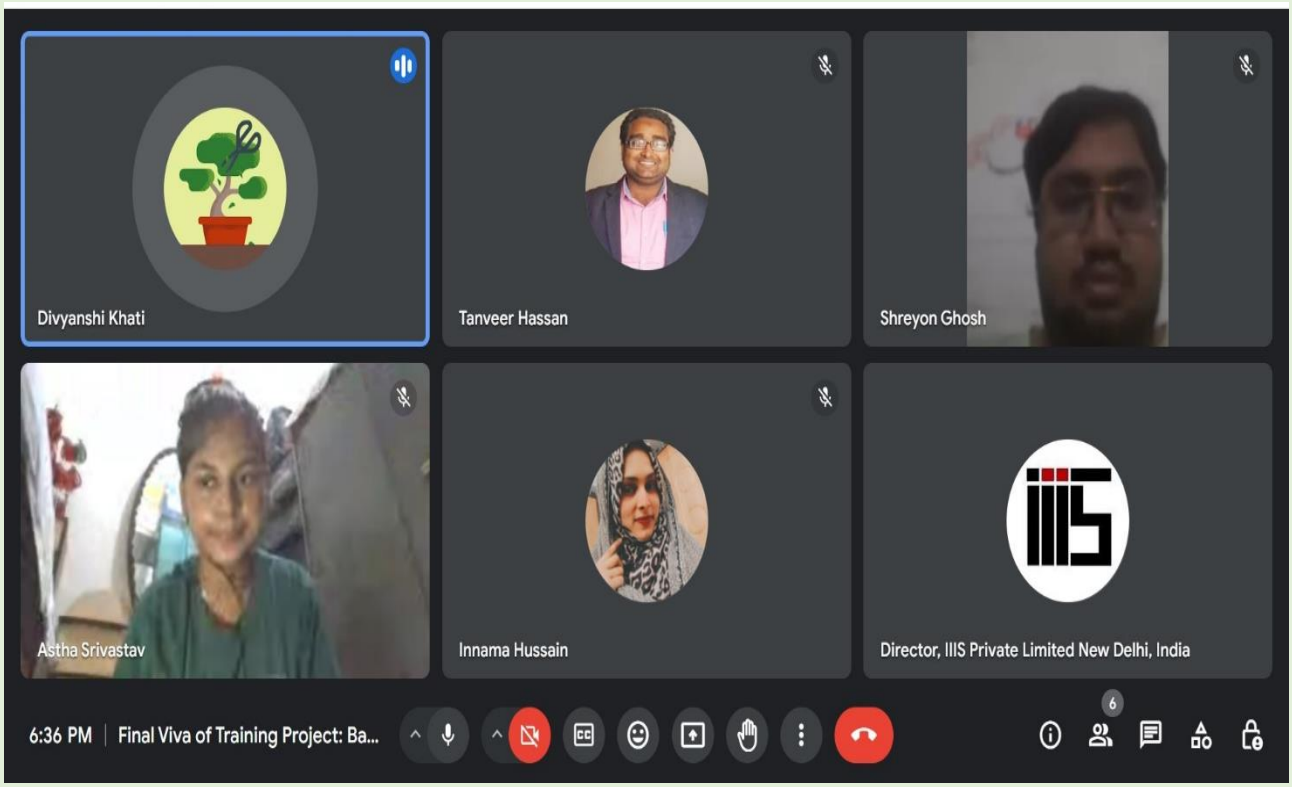
Prof. Vinish Kumar, RKGIT Ghaziabad, delivered an expert lecture on the Importance of Software Requirements in Software Development to Batch 8 trainees-online mode of IIIS Delhi



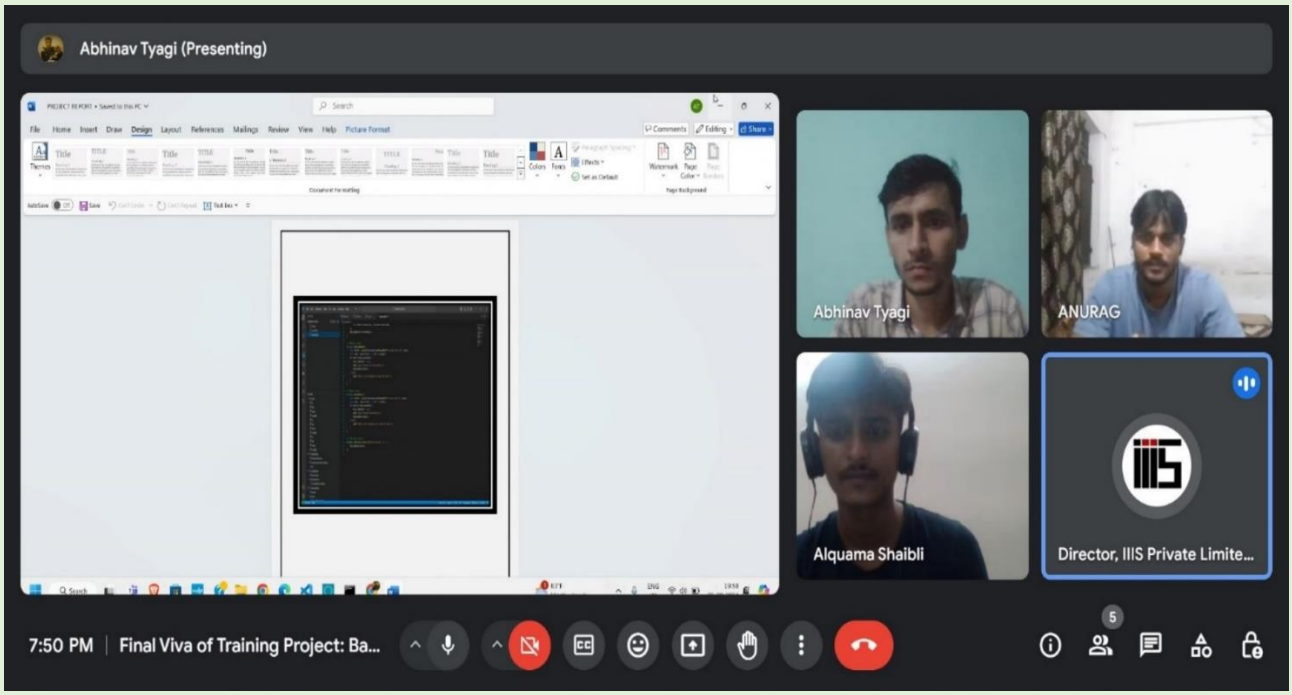
Trainees of Batch-9 online mode presented their project work in the presence of external examiners, i.e., **Dr. Virat Raj Saxena** and **Dr. Mamta Tayal**, Assistant Professor, CSE- AI&ML, RKGIT, Ghaziabad, Uttar Pradesh, India



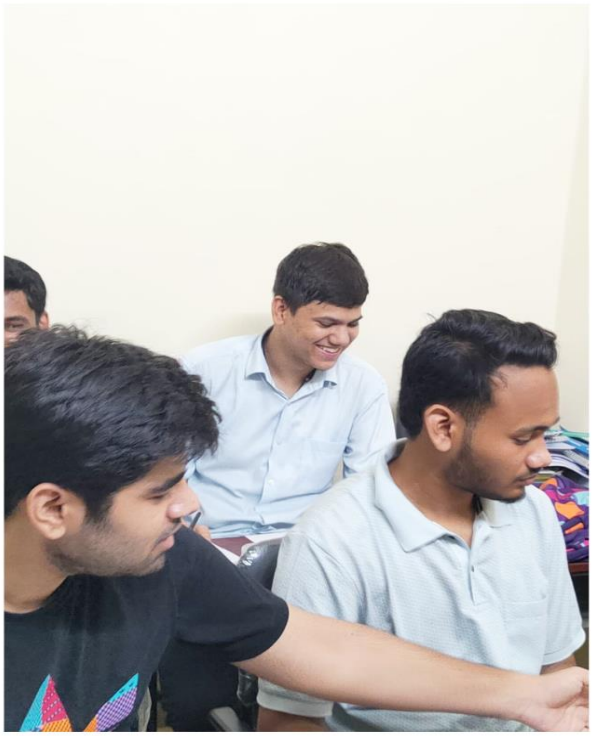
Trainees of Batch 10 online mode are presenting their project work to external examiner **Dr. Mamta Tayal**, Assistant Professor, CSE- AI&ML, RKGIT, Ghaziabad, Uttar Pradesh, India



Trainees of Batch 13 (Online Mode) presented their project work to external examiner **Dr. Tanveer Hassan**, Assistant Professor, Department of Computer Science and Engineering, K. R. Mangalam University, Gurugram, Haryana, India. Dr. Hassan also delivered an expert lecture on Recommendation Systems and their applications in Software Engineering



Trainees of Batch 14 (Online Mode) presented their project work to **Dr. Azra Parveen**, Director, IIIS Private Limited, New Delhi, India.



Final Evaluation of the Trainees (Final Test of One and Half Hours)

Final Evaluation of the Trainees (Final Test of One and Half Hours)

Batch 19: Over 25 students from Jamia Millia Islamia, New Delhi, successfully completed their internships in offline mode at IIIS Delhi during the summer vacation of 2025. The trainees were evaluated by Mr. Adnan Khan, Coordinator – Batch 19, ITSD, and Mr. Syed Hammad Ali, Coordinator – Batch 19.

8. Awarding Certificates to the Trainees

Trainees of Batch 4 (Offline Mode) were evaluated by **Mr. Mohammad Asim**, Ph.D. Scholar, Department of Computer Science and Engineering at Sushant University, Gurugram, Haryana, India. He also delivered an expert lecture on Cyber Security.

Trainees of Batch 11 (Offline Mode) were examined by **Dr. Javed Ahmad**, Associate Professor, Sharda, University, Greater Noida. He also delivered an expert lecture on different issues related to Security Requirements Engineering.

Group photograph of Batch 14 (Section B) and Batch 17 trainees along with **Mr. Adnan Khan**, Instructor at IIIS Delhi.

Batch 20: Seven students from various institutes and universities successfully completed the Two-Month Summer Internship / Industrial Training Programme on Information Technology in Management, conducted in online mode from June 9, 2025 to August 9, 2025. The participating institutions included: Sushant University, Gurugram, Haryana; Jamia Millia Islamia, New Delhi; J.C. Bose University of Science and Technology, Faridabad, Haryana; Jamia Hamdard, New Delhi; and Comm-IT Career Academy, affiliated with Guru Gobind Singh Indraprastha University, New Delhi. The trainees were evaluated by the coordinator Prof. Mohammad Asim, IIIS Delhi.

9. Testimonials

What our trainees say about the training programme (selected list)?

I have successfully completed a **Short-Term Course on Research Paper Writing** (December 16, 2024 – March 8, 2025), Batch-1, at IIIS Delhi. As an outcome of this program, my research work was accepted and presented at the 3rd International Conference on Power Engineering and Intelligent Systems (PEIS-2025), published by Springer. The conference was organized by the **National Institute of Technology Uttarakhand** and technically sponsored by the Soft Computing Research Society, New Delhi, India. In addition, I completed an intensive 10-week training program (Batch-11) at IIIS Delhi from June 1, 2024 to August 10, 2024. My project, titled "Elicitation of Functional and Non-Functional Requirements of Railway Reservation System," proved to be a highly transformative learning experience. Throughout the training, I gained hands-on exposure to software engineering concepts, particularly requirements engineering and various elicitation techniques, including both traditional and goal-oriented approaches. I also worked extensively on UML modeling, developing use-case diagrams and AND/OR graphs, which significantly enhanced my ability to analyze, visualize, and structure system requirements effectively.

Syed Hammad Ali
Diploma in Computer Engineering, Jamia Millia Islamia, New Delhi; B.Tech. Computer Science and Engineering, 2025-2028 Batch from School of Information, Communication and Technology, GGSIPU, New Delhi

I recently completed the Four-Week Software Development Training programme, Batch 11th, at IIIS Delhi, and it was a fantastic experience. The instructors were incredibly knowledgeably, bringing their extensive research and real-world experience into the classroom. The training was not only informative but also engaging. I gained valuable skills and insights that I am eager to use in my future work. I am grateful to IIIS Delhi for this opportunity and look forward to more such programs. During the training period, I worked on "**Staff Management System of an Institution**" and implemented few requirements after identifying the functional and non-functional requirements of the system**.**

Nitya Chauhan
B.Tech. Computer Science and Engineering, 2022-2026 Batch
Thapar Institute of Engineering and Technology, Patiala, Punjab

The 8th week internship on software development program Batch-9th of Indraprastha Institute of Information Sciences (IIIS) Private Limited, New Delhi, was really helpful and interesting. Even though I studied something similar in college, i.e., IIIT Dharwad. I learned some new and important things at IIIS Delhi that are useful for working in the industry. For example, we talked about how to estimate the software costs, use of fuzzy logic, and applications of fuzzy TOPSIS, which is a multicriteria decision making method. We also discussed how to pick and prioritize what the stakeholders need, which was helpful and answered some of my questions. In addition to this, the hands-on part of the program was great. I got to work on a project entitled **Elicitation and Modeling of the Requirements of Railway Reservation System**. Talking to the professor/experts, showing him my work, and getting feedback helped me a lot to learn and improve.

Karthik Avinash
B.Tech. Computer Science and Engineering, 2021-2025 Batch
Indian Institute of Information Technology, Dharwad

I really enjoyed the training program as an intern of the Batch- 5th of **Eight-Week Training Program on Software Development** at IIIS Delhi. The training was knowledgeable and engaging. I learned a lot of new things that I can apply in my future work. I was impressed with the quality of the training programme and the expertise of the trainees. I excited to put my new skills to solve some real-world problems. Overall, the training programme was a great experience. I am very grateful for the opportunity provided by the IIIS Delhi. I would be happy to attend the other training programmes in future offered by the IIIS Delhi.

Manish Kumar
B.Tech. in Computer Science and Engineering-III Year, 2020-2024 Batch
Indian Institute of Information Technology Raichur

I am happy to have been part of the Batch-5th of an **Eight-Week Training Program on Software Development** at IIIS Delhi. The teachers were experts in their field and had lots of experience doing research in software development. The course covered many topics that are not usually found in books mostly based on real life scenarios. It was a great environment for research, and we were encouraged to think of new and exciting ideas. The best part of the training was learning how software development is used in real companies. Working on research papers was also new and exciting for me, and I learned how to find important information in them. I gained lots of new knowledge and skills during the program. During the training, I worked on a project called "Modelling of Food Delivery System using UML and Goal Oriented Approach." This project gave me a chance to practice what I had learned during the program. Overall, the training program was a very positive and helpful experience, and I am thankful to IIISD for giving me this chance to learn and improve.

Vemula Murali Sai Praharsha
B.Tech. in Computer Science and Engineering-II Year, 2021-2025 Batch
Indian Institute of Information Technology Guwahati

The **Four Week Industrial Training on Software Development** of Batch-2 at IIIS Delhi really helped me get the exposure of software engineering like what it takes to build a system from scratch. Prior to this, I used to think, it is all about coding but it is not true. The training introduced to me the processes for building any software before the implementation stage and how much significance it holds in the software development process. The processes of requirements engineering, reasons for the failures of any software, resolution of conflict among stakeholders regarding requirements, security requirements of a software specifically and many more concepts were taught with the real-world examples. We all had to work on a system and implement whatever we learned which reinforced our learning. I really appreciate the effort put by the IIIS Delhi for this training programme.

Md. Yusuf Azam
Diploma in Computer Engineering-III Year, 2020-2023 Batch
Jamia Millia Islamia, A Central University, New Delhi (NIRF ranking 3 in 2022)

The Ten Week Industrial Training on Software Development of Batch-2 at IIIS Delhi has given me the chance to explore different areas of software development processes like software requirements elicitation, UML models, Fuzzy Logic, and implementation of requirements. One of the best parts of the training was the systematic approach to complete the training projects in which we have developed a tool for computing the ranking order of the requirements of an information system. The resource persons were very knowledgeable who discussed the contents of the training in the light of the research papers which have been published in SCI / Scopus indexed journal

Sudhir Kumar
B. Tech. IV Year 2019-2023 Batch
Motihari College of Engineering, Motihari, Bihar, India

I honestly enjoyed the Four-Week Industrial Training Program on Software Development of Batch-2 at IIIS Delhi. The course contents were well planned and it was easy to follow. The work load was just enough that I finished it within time. I would like to say that everyone has enjoyed the training program because all the lectures, assignment, and tests were straightforward. I worked on the project entitled Software Requirements Elicitation and Modeling of E-Library Management System.

Jiya Singh
B.Tech. Computer Science and Engineering, IV Year-2019-2023 Batch
Khwaja Moinuddin Chisti Language University Lucknow, Uttar Pradesh, India

The Four Week Industrial Training on Software Development of Batch-2 at IIIS Delhi has given me the opportunity to interact with those resource persons who have good knowledge of software development and research. This training has molded me in the best way possible and made me feel confident in facing any issue related to software development process. The interaction with the resource persons and participants helped me to understand how to elicit and model the requirements of an information system. I worked on the project entitled Software Requirements Elicitation and Modeling of Movie Ticket Booking System

Sandeep Kumar
MCA-II Year-2020-2023 Batch
Mahatma Jyotiba Phule Rohilkhand University Bareilly, Uttar Pradesh, India

IIIS Delhi has provided me with a plethora of opportunities to understand basics of Software Development after the completion of my Diploma in Computer Engineering in 2022 from Jamia Millia Islamia, New Delhi. This **Six Week Industrial Training on Software Development** was very effective to both Computer Engineering and non-Computer Engineering students. Even non-Computer Engineering students also learn in a very fast and effective manner. One of the features of this training programme was that it uses research-oriented methodology in which most of the contents were discussed using research articles. There was a systematic discussion on the progress of the project as per the convenience of the students. During the training, I worked on the project entitled "**Software Requirements Elicitation and Modeling of an Online Examination System**."

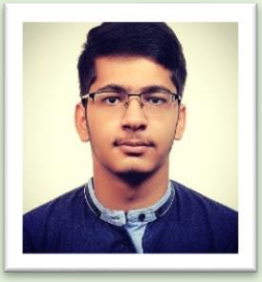
Adarsh Kumar
Diploma in Computer Engineering-2022 Batch
Jamia Millia Islamia, A Central University, New Delhi, India (NIRF ranking 3 in 2022)

It was one of the best learning experiences that I had at the Indraprastha Institute of Information Sciences Delhi. The training was completely based on industrial projects. The classes were very interactive and enhance my knowledge in the field of software development. The prior knowledge of mathematics and coding helped me to complete my project, i.e., **"Eliciting the Ranking Order of Requirements of an Online Training System using Fuzzy TOPSIS Method**". Overall environment of this institution is very friendly and they always help the students. I would say that I am very much happy that I have completed my **Six Week Industrial Training on Software Development** (first batch) from IIIS Delhi.

Mohd Saquib
B. Tech. Mechanical Engineering-IV Year, 2019-2023 Batch
Aligarh Muslim University, Aligarh, Uttar Pradesh, India

The training programme was very good. I have learned a lot of new things related to the software development. I am happy that I have got the chance to explore software engineering as an intern during the **Six Week Industrial Training on Software Development** at Indraprastha Institute of Information Sciences Delhi. The teachers were very supportive during the classes. I have got the opportunity to work on the project which was an essential component to successfully complete the training. I worked on the project, i.e., **Software Requirements Elicitation and Modeling of an Online Admission Management System.**

Vishal Awasthi
B. Tech. Computer Science and Engineering-IV Year, 2019-2023 Batch
University of Lucknow, Lucknow, Uttar Pradesh, India



The Six-Week Industrial Training on Software Development at IIIS Delhi has given me the opportunity to interact with more than 3o students who were from various institutes like NIT Rourkela, AMU Aligarh, JMI New Delhi, University of Lucknow, Lucknow, and many more. This training program helped me in brushing up the software development life cycle theory and learn how things are implemented practically rather than learning bookish concepts. We also learned how we can contribute towards the research papers in this domain. As a first batch student, I have got the opportunity to work on the project entitled "Attributed Goal Oriented Requirements Analysis Method."

Anukool
B.Tech. Computer Science and Engineering-III Year: 2020-2024 Batch
Indian Institute of Information Technology Lucknow, Uttar Pradesh, India

It was a good experience for beginning software development as an intern in the **Six Week Industrial Training on Software Development** at Indraprastha Institute of Information Sciences (IIIS) Delhi. During the training period, I learned various methods for the identification of the software requirements and the modeling of the requirements using UML. In addition to this, the fuzzy logic was also discussed to deal with the vagueness and imprecision during the selection and prioritization of software requirements. During the training, I worked on the research-oriented project, i.e., **Eliciting the Ranking Order of Requirements of an Online Examination System using Fuzzy TOPSIS Method.**

Md. Rumman Haider
M. Tech. Mining Engineering-II Year, 2021-2023 Batch
National Institute of Technology Rourkela, Odisha, India

I am happy that I have joined the first batch of **Six Week Industrial Training on Software Development** at IIIS Delhi. The course contents of the training programme were taught by *expert faculties*, who have good research experience in software development. It helps me to learn lots of things related to software development, that are not even available in the books. It provides research environment and very supportive to think something out of the box. Get to learn about how actually software engineering applied in corporates. Working on research papers and to learn how to analyse them and extract something meaningful was new to me. It was very interesting experience, full of excitement, and knowledge. During the training, I worked on the project entitled, **A Tool for the Detection of Discordances Among Stakeholders During Software Development.**

Omkar Singh Raghav
B. Tech. Computer Engineering-IV Year, 2019-2023 Batch
Aligarh Muslim University, Aligarh, U.P, India

10. Certification

Candidates who score at least 50% marks overall and have minimum attendance of 75% will receive a "**Certificate of Completion of Industrial Training on Software Development**" from **Indraprastha Institute of Information Sciences Delhi**.

Candidates who score less than 50% marks overall and have minimum attendance of 50% will receive a "**Certificate of Participation in Industrial Training on Software Development**" from **Indraprastha Institute of Information Sciences Delhi**.