

Indian Institute of Technology, Guwahati



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PROFESSIONAL DEVELOPMENT WORKSHOP

Date: 18-23 December, 2023

For Delegates from

Royal University of Bhutan



Royal University of Bhutan

organized by

Mehta Family School of Data Science & Artificial Intelligence



PATRON & FACILITATOR

Prof. Ratnajit Bhattacharjee
Prof. Mihir Kumar Purkait, Dean AER.
Prof. G Krishnamoorthy, Dean II&SI.



ORGANIZER

Dr. Chiranjib Sur

SPEAKERS

Prof Ratnajit Bhattacharjee
Prof. Siddhartha Pratim Chakrabarty
Prof. Shyamanta M Hazarika
Prof. Girish Setlur
Dr. Gaurav Trivedi
Dr. Hanumant Singh Shekhawat
Dr. Suresh Sundaram
Dr. Debanga R. Neog
Dr. Neeraj Sharma
Dr. Teena Sharma
Dr. Chiranjib Sur

DATA SCIENCE CONCLAVE

Prof Ratnajit Bhattacharjee
Prof. Siddhartha Pratim Chakrabarty
Dr. V. Vijaya Saradhi
Dr. Prashant Patil
Dr. Chiranjib Sur



About IIT Guwahati

The Indian Institute of Technology Guwahati (IIT Guwahati) is a prestigious technical institution located on the picturesque banks of the Brahmaputra River in Guwahati, Assam. Established in 1994, it has emerged as a leading hub for engineering and technological education in India. Renowned for its commitment to academic excellence, research, and innovation, IIT Guwahati offers a diverse range of undergraduate, postgraduate, and doctoral programs across various disciplines. The institute's state-of-the-art infrastructure, vibrant campus life, and emphasis on holistic development contribute to a nurturing environment for students. With a focus on cutting-edge research, industry collaboration, and global partnerships, IIT Guwahati continues to produce skilled professionals and contribute significantly to advancements in science and technology on both national and international fronts.

COURSE OBJECTIVE

The course in Data Science is designed to provide students with a holistic understanding of the principles and practices essential for extracting meaningful insights from data. Through a comprehensive curriculum, one can learn the entire data science lifecycle, from data collection and preprocessing to advanced machine learning techniques and ethical considerations. The course aims to equip students with proficiency in statistical and mathematical foundations, hands-on experience in popular programming languages and tools, and the ability to leverage big data technologies for scalable data processing. By the end of the course, one will have the skills and expertise necessary to tackle real-world data challenges and contribute meaningfully to the field of data science.



TOPICS TO BE COVERED

Web Development

JavaScript and CSS
PHP and HTML

AI & ML

Machine Learning
Computer Vision
Natural Language Processing
Recommendation Systems
Speech and Signals
AI in Healthcare and Robotics
AI in Neurorehabilitation
Mathematics for Deep Learning

Introduction to Financial Analytics

Basics of Data Analysis

Advanced Data Analytics

Big Data Technologies

NoSQL Databases

Visualization

Research methods and supervision

Research scopes in DS & AI

Prompt Engineering to Solve Quantitative Problems

Other topics as proposed by the experts.



VENUE

Class Room 5206; Core 5

Scan Here for Direction



PLACES TO SEE AROUND GUWAHATI

Umananda Temple



Kamakhya Temple

Kaziranga National Park



LECTURE SCHEDULE

Slots	Date		9:00 - 11:00 AM	Tea Break	11:30 - 1:30 PM	Lunch Break	3:00 - 4:00 PM	4:00 - 5:00 PM
1	18-Dec-23	Monday	Dr. Suresh Sundaram (EEE) Topic: AI & ML		Prof Ratnajit Bhattacharjee (MFSDAI) Topic: Research Scopes in DS AI. Research Methods & Supervision		Dr. Gaurav Trivedi (EEE) Topic: AI and Hardware	
2	19-Dec-23	Tuesday	Prof. Siddhartha Pratim Chakrabarty (Maths) Topic: Introduction to Financial Analytics		Dr.Hanumant Singh Shekhawat (EEE) Topic: A Mathematical Introduction to Neural Network		Visit to IITG Super Computing Facilities (Presentations and Hands-on) Resource Person: Mr. Jeherul Islam TO Gr-1 (CCC)	
3	20-Dec-23	Wednesday	Prof. S. M. Hazarika (Mech) Topic: AI in Neurorehabilitation		Dr. Chiranjib Sur (MFSDAI) Topic: Language Models & Recommendation Systems		Lab 1	Lab 2
4	21-Dec-23	Thursday	Prof. S. M. Hazarika (Mech) Topic: AI in Healthcare & Robotics		Prof Ratnajit Bhattacharjee (MFSDAI) Topic: Basics of Data Analysis		Lab 3	Lab 4
5	22-Dec-23	Friday	Dr. Debanga R. Neog (MFSDAI) Topic: AI & ML		Dr. Chiranjib Sur (MFSDAI) Topic: Advanced Data Analytics		Dr. Neeraj Sharma (MFSDAI) (online) Topic: AI & ML	Dr. Teena Sharma (MFSDAI) (online) Topic: AI & ML
6	23-Dec-23	Saturday	Prof. G. Setlur (Physics) Topic: Prompt Engineering of Large Language Models to Solve Quantitative Problems		DATA SCIENCE CONCLAVE : Open session on UG/PG curriculum on DS& AI. Feedback and valedictory			