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**Prof Vijay Kumar Singh**  
*Secretary, IETE Ranchi, Jharkhand*

## ABOUT THE FDP

This Faculty Development Programme (FDP) provides an interdisciplinary platform for faculty members and researchers to explore the transformative potential of Artificial Intelligence in Hyperspectral Data Analytics. The programme bridges classical remote sensing with modern AI-driven approaches, covering the complete pipeline from image acquisition to intelligent decision-making.

Participants will gain comprehensive, hands-on experience in hyperspectral preprocessing, dimensionality reduction, machine learning, deep learning architectures, and domain applications in agriculture, environment, defence, and medical imaging. The FDP is designed to enhance research capability and equip participants with contemporary tools for effective teaching and applied research.

## 5-DAY PROGRAMME SCHEDULE

**Day 1**

### Introduction to Hyperspectral Data & AI

Overview of HS Imaging, AI/ML Fundamentals, Data Visualization in Python

**Day 2**

### Preprocessing & Feature Extraction

Noise Reduction, Calibration, Dimensionality Reduction (PCA/ICA/t-SNE)

**Day 3**

### Machine Learning for HS Analytics

SVM, Random Forest, k-NN, Clustering, Model Evaluation, Classification

**Day 4**

### Deep Learning & Advanced AI

CNNs, Autoencoders, Transfer Learning, Explainable AI, TensorFlow

**Day 5**

### Applications, Projects & Trends

Agriculture, Environment, Medical Use Cases, Group Projects, Valedictory



इलेक्ट्रॉनिक्स एवं सूचना प्रौद्योगिकी मंत्रालय  
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY  
सत्यमेव जयते

## One Week Faculty Development Programme On

**Artificial Intelligence for Hyperspectral Data Analytics  
(AI-HYDA) -2026**

*Spectral Intelligence: The AI-Driven Frontier of Data Analytics*

**8th – 12th June 2026**



## Organised By

Quantitative Economics & Data Science  
Birla Institute of Technology, Mesra  
Ranchi – 835215, Jharkhand

In collaboration with E&ICT Academy (Meity) Phase-II, NIT Patna



## ABOUT THE INSTITUTE AND DEPARTMENT

Birla Institute of Technology (Mesra) is located in Ranchi, Jharkhand. It was founded in 1955 with a vision to meet the country's growing demand for Engineering and Technology. BIT Mesra is one of the pioneers in space engineering and rocketry. The Institute was recognised as a deemed university under Section 3 of the UGC Act, 1956, in 1986. The journey of the Institute has been commendable not only in Engineering and Technology but also in strengthening the foundations of fundamental sciences and exploring modern-day innovations across diverse areas of application. The Institute's academic program comprises 20 Departments and Centres, equipped with modern infrastructure to support the country's growing research ecosystem. Dedicated facilities within the Institute make it an ideal platform for multidisciplinary research. The Department of Quantitative Economics and Data Science was established in 2021 to provide fundamental knowledge and problem-solving skills in these fields. The Department aims to disseminate knowledge that enhances analytical capabilities, promotes research, and supports practical applications. It is recognized at par with other leading Centres in terms of computational facilities and academic research infrastructure.

## ABOUT RANCHI

Ranchi, the capital of Jharkhand, is popularly known as the 'City of Waterfalls'. With a pleasant, moderate climate and proximity to multiple waterfalls, hills, and forests within 70–100 km, it offers a refreshing and inspiring environment for academic pursuits.

## ADVISORY COMMITTEE

- Dr. Prakash Chauhan**  
*Director, NRSC, Hyderabad*
- Dr. R.P. Singh**  
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*National Vice president, IETE, New Delhi*

## IMPORTANT DATES

<b>Registration Starting date</b>	<b>25<sup>th</sup> March 2026</b>
<b>Registration Deadline</b>	<b>28<sup>th</sup> April 2026</b>
<b>Confirmation of Participation</b>	<b>8<sup>th</sup> May 2026</b>

## PAYMENT DETAILS

**For Online Transfer:**  
**Bank Name:** INDIAN BANK, NIT Patna, Bihar  
**Account Number:** 50380476798  
**Account Name:** E AND ICT ACADEMY  
**IFSC CODE:** IDIB000B810  
**Payment can also be done using QR code** 

## REGISTRATION & GUIDELINES

- ❖ Registration fee: ₹500 per participant
- ❖ Selection based on the recommendation of the selection committee
- ❖ Selected candidates will be informed by email
- ❖ Accommodation in Hostels with catering facilities
- ❖ Stationery and consumable items will be provided
- ❖ A certificate of successful completion will be issued
- ❖ Registration seats are limited to 80 participants only

**Registration QR code:**

<https://forms.gle/YoF8Bct6meHUJDpeA>



## FOR ANY ENQUIRIES OR FURTHER INFORMATION, PLEASE CONTACT

**Organising Coordinator**  
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