



Certification Program in Data Analytics with AI and Gen AI

from E&ICT Academy, IIT Roorkee

In association with masai®

About E&ICT Academy, IIT Roorkee

- **The Electronics & ICT Academy (E&ICT)**, supported by MeitY, Govt. of India, aims to bridge the gap between industry demand and academic knowledge by delivering specialized, hands-on training and upskilling programs in emerging areas of the Information & Communication Technology and Electronics sector.
- **The Indian Institute of Technology (IIT) Roorkee**: A legacy of over 175 years. Established in 1847 as India's first engineering college, it became an IIT in 2001, excelling in engineering and technology.
- **Rankings**: IIT Roorkee consistently ranks among the top engineering and research institutions in India. In the NIRF India Rankings 2024, IIT Roorkee was ranked #6 in the 'Engineering' category and #8 in the 'Overall' category.
- **Strong Industry & Research Ecosystem**: With active collaborations, incubators, and innovation hubs, IIT Roorkee bridges academia and industry to drive real-world impact.
- **Industry-Focused Learning**: IIT Roorkee maintains strong ties with industries across its campus locations, providing students with opportunities for internships, real-world projects, and networking with business leaders.



Why Choose This Course?

- **Prestigious Certification:** Receive a Certificate of Completion from E&ICT Academy, IIT Roorkee, recognizing your achievement
- **Campus Immersion:** An optional 2-day Campus Immersion for direct interaction with industry experts and peers
- **Future-Proof Career Gateway:** Enter the fast-evolving AI era by mastering Data Analytics with AI through hands-on learning guided by leading IIT faculty
- **Advanced Curriculum:** Access cutting-edge business analysis content, engaging simulations, and practical evaluations. Focus on real-time project implementation for hands-on mastery
- **Practical-Based Learning:** Engage in immersive, hands-on projects that span data foundations, AI-assisted analytics, and agentic system design- applying Python, LLM frameworks, and multi-agent architectures to solve real-world, industry-driven business challenges
- **Placement Opportunities:** Receive resume reviews, career coaching, and placement support to land your dream role. (Eligibility: 65% attendance & overall 70% marks; offered by Masai)

**Eligibility: Minimum 65% overall attendance and 35% in the cumulative evaluation score*

What Will You Learn?

Drive your career forward by mastering Data Analytics with AI and Generative AI. Build a strong foundation in data architecture, SQL, Python, and spreadsheets, then advance to Large Language Models, strategic prompt engineering, and AI-assisted analytics. Gain hands-on expertise in Generative AI, multi-agent systems, and automation, emerging as a portfolio-ready professional equipped to solve complex, AI-driven business challenges.

Toolkit



Course Details

Course Duration
6 Months

Time Commitment
8-10 hours per week

Certification
E&ICT Academy, IIT Roorkee

Course Curriculum

Module 1: Core Data Architecture & Analytical Foundations

- Master data manipulation and automated cleaning using Google Sheets and Python
- Build complex database queries using SQL to manage relational information
- Develop algorithmic thinking and core programming logic in Google Colab

Module 2: LLM Frameworks & Strategic Prompt Engineering

- Implement advanced zero-shot and few-shot prompting strategies for enterprise tasks
- Integrate Large Language Models (LLMs) into applications via programmatic API calls
- Leverage AI as an analytical partner for creative content synthesis and report generation

Module 3: Intelligence-Driven Wrangling & Visual Narratives

- Utilize NumPy and Pandas for high-speed numerical processing and data manipulation
- Create persuasive visual stories and dashboards using Matplotlib and Seaborn
- Use AI "Co-pilots" to generate data-driven hypotheses and discover hidden patterns

Module 4: Architecting Agentic Systems & Automation

- Design autonomous AI agents using the LangChain and CrewAI frameworks
- Enable agents to research, browse the web, and interact with external APIs independently
- Build multi-agent "swarms" to automate complex, sequential business workflows

Capstone Project

- Prototype a functional, multi-agent AI application to solve a real-world business problem
- Learn to articulate technical design decisions and project ROI to stakeholders
- Prepare for a professional launch into the AI-enabled global workforce

Projects

Quick-Commerce Delivery SLA Diagnostic

Blinkit's ops director sees the sub-10-minute delivery compliance rate dropping in Mumbai and Bengaluru. Using the public quick-commerce dataset, you build a Python notebook that segments delivery times by hour, dark-store cluster, and product category, identify the top 3 bottleneck patterns, and ship a Power BI dashboard for the regional ops review

Python • pandas • SQL • Power BI / Tableau • Root-Cause Analysis • Operational Storytelling

Decision Output

Bottleneck diagnosis with three prioritised, defensible fixes for the regional ops review

SKU-Level Demand-Forecasting Model

Zepto's category leads need an SKU-level demand forecast for the next four weeks for festive planning. You build a Python forecasting pipeline (Prophet or ARIMA), validate with backtesting, deploy as a Streamlit app, and write a model card explaining accuracy bounds, drift risks, and limitations — the kind of work that gets you past the senior-analyst interview round

Time-Series Forecasting • Prophet / ARIMA • Backtesting • Streamlit • Model Documentation

Decision Output

Four-week SKU demand forecast that category planning can defend against last year's actuals

Please Note: "Due to the evolving nature of the industry expectations and partner institute feedback, some syllabus aspects may change. Any updates will be communicated during the Inauguration Session(s) or at the start of the relevant module".

The project deliverables or case studies for your batch may differ, as per the decision of the Institute or Course Faculty

Under the Guidance of



Prof. Sanjeev Manhas

Principal Investigator of E&ICT Academy, IIT Roorkee

Prof. Sanjeev Manhas, Principal Investigator of E&ICT Academy, IIT Roorkee, is a distinguished academician, researcher, and innovator with extensive experience in academia, research, and industry. He holds a Ph.D. in Electronics and Computer Engineering from De Montfort University, UK, and an M.Tech. from IIT Madras. He has worked at Micron Semiconductor and the Institute of Microelectronics, Singapore, contributing to advanced DRAM and CMOS process integration. His research spans nanoscale devices, device-circuit co-design, novel memories, MEMS, sensors, and CMOS process technologies.

Our Instructors and Industry Experts



Prof. Abhishek Samantray

Assistant Professor, IIT Roorkee

Big Data Analytics | Applied Statistics | Data Science

Joint faculty at IIT Roorkee's School of Data Science; researches digital markets, socio-economic systems, and applied analytics.



Prof. Partha Pratim Roy

Professor, IIT (ISM) Dhanbad

Computer Vision | Machine Learning | AI Systems

Ex-IIT Roorkee faculty with 250+ publications; led industry teams at TCS and Samsung; Associate Editor for leading IEEE journals.



Prof. Saurabh Srivastava

Assistant Professor, IIT (ISM) Dhanbad

Software Engineering | Database Systems | Object-Oriented Programming

Leads automation initiatives at IIT (ISM) Dhanbad, overseeing development and maintenance of the institute's in-house ERP system.



Prof. Rajendra Pamula

Associate Professor, IIT (ISM) Dhanbad

Machine Learning | Data Mining | Wireless Networks

Teaching and researching machine learning, data mining, and wireless network systems at IIT (ISM) Dhanbad since 2010



Shaunak Chadha

Senior Product Data Scientist, Google

6+ years | Product Analytics | Experimentation | Data Science

Ex-PayPal, Uber, and Razorpay; specialises in A/B testing, KPI strategy, and data-driven product decision-making.



Rituraj Singh Gour

Business Analyst II, Adobe

4+ years | Business Intelligence | Data Analytics | Decision Science

Ex-Amazon analyst specialising in SQL-driven analytics, dashboarding, and data storytelling to improve retention and business processes.

**Note: Instructors teaching your batch may change based on specific module expertise, or circumstances such as personal emergencies, unavailability etc.*

Admission Process



Submit Application

Complete application form to showcase your motivation and goals



Complete Selection and Enrolment Session

Only shortlisted candidates go through the counselling process



Start Learning

Learn from India's top educators and stand out from the crowd

Fee structure

Application Fee Non-refundable	₹99
Registration Fee	₹4,000
Program Fee	₹53,000
Total Fee	₹57,000 + GST
Upfront Payment ₹63,260*	EMI via NBFC Partners ₹8,083/month × 9

**Inclusive of GST | All payments are non-refundable. This policy ensures the sustained quality and provision of our services*

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