

Post Graduate Certificate in Data Analytics & Application of Generative AI

Duration: 10 Months (120 Hours, Online Mode); Weekend Virtual Classes (3-6 hours / weekend). Recordings to be available

Instructors : Suyash Prasad, Hewlett Packard Enterprise, Ex Deloitte Consulting, BTech-IIT Kharagpur, MBA- IIM Kozhikode

Ankit Kumar Soni, BTech, IIT Kharagpur, Founder – Devlaunch

Course Coordinator : Prof. Mrigank Sharad, IIT Kharagpur

Start Date : January 15

Delivery: Live Interactive Classes + Hands-on Projects + Case Studies

Program Overview

The *Post Graduate Certificate in Data Analytics and Generative AI* is designed to equip learners with essential analytical, technical, and AI-driven creative skills required in today's data-centric world. The program combines core Data Analytics competencies with the rapidly emerging field of Generative AI, enabling learners to apply data-driven insights and AI-based innovation to solve complex business challenges.

Program Objectives

- Build strong foundations in **data analysis, statistics, and visualization**.
- Provide hands-on exposure to **Python, SQL, and modern analytics tools**.
- Develop expertise in **machine learning and predictive analytics**.
- Explore **Generative AI concepts, tools, and applications** in real-world domains.
- Enable participants to complete **capstone projects** showcasing practical knowledge.

Program Structure (120 Hours / 10 Months)

Module 1: Foundations of Data Analytics (20 Hours) [Instructor Mrigank/ Ankit]

- Introduction to Data Analytics & Business Applications
- Basics of Data, Databases, and Data Processing
- Introduction to Python for Analytics
- SQL for Data Extraction and Management

Module 2: Statistics & Exploratory Data Analysis (20 Hours) [Instructor: Mrigank/Ankit]

- Descriptive & Inferential Statistics
- Probability & Distributions

- Hypothesis Testing
- Data Cleaning & Transformation
- Exploratory Data Analysis (EDA) with Python & Visualization

Module 3: Predictive Analytics & Machine Learning (20 Hours) [Instructor - Suyash Prasad]

- Analytics Maturity Framework
- Supervised Learning: Regression & Classification Techniques
- Unsupervised Learning: Clustering
- Model Evaluation & Validation – Confusion Matrix, MAPE
- Introduction to Deep Learning
- Real-world Case Studies – Identify Machine Learning Problems

Module 4: Generative AI Foundations (20 Hours) [Instructor : Ankit Soni: Leverage Past Training Content]

- Introduction to Artificial Intelligence & Generative AI
- Neural Networks, Transformers & Large Language Models (LLMs)
- Prompt Engineering for Text Generation
- Image, Audio & Video Generation Tools (DALL·E, Stable Diffusion, etc.)
- Ethics & Responsible AI Use

Module 5: Applied Generative AI (20 Hours) [Instructor - Suyash Prasad]

- Chatbots & Conversational AI
- AI-driven Content Creation (Text, Media, Code)
- Business Applications: Marketing, Healthcare, Finance, Education
- Integrating Generative AI with Data Analytics Pipelines & Data Transformation
- Hands-on Use cases with OpenAI, Hugging Face, N8N & Emerging Platforms
- Fair practice for Applied Generative AI

Module 6: Capstone Project & Presentation (20 Hours) [Instructor – Suyash Prasad. TA / Students. Design 2-3 AI projects for the participants]

- End-to-End Data Analytics & Generative AI Project
- Problem Formulation & Data Collection
- Model selection, Building and Testing

- Model Insights & Visualization
- AI-Enhanced Solution Prototype
- Final Presentation & Evaluation

Learning Pedagogy

- **Mode:** 100% Online (Live Sessions + Recorded Access)
- **Methods:** Case Studies, Hands-on Labs, Group Discussions, AI Tools Demonstrations
- **Assessments:** Module-wise Quizzes, Assignments & Final Capstone Project

Target Audience

- Graduate students aspiring for careers in **Analytics & AI**
- Working professionals looking to upskill in **Data Science & Generative AI**
- Entrepreneurs seeking to leverage **AI-driven innovation**

Certification

Participants who successfully complete the program, assessments, and capstone project will be awarded the:

“Post Graduate Certificate in Data Analytics and application of Generative AI”

by *IIT KHARAGPUR*

Partnering organization : K-Tech