CERTIFICATION PROGRAM IN
DATA ANALYTICS WITH GEN & AGENTIC AI

FROM VISHLESAN i-HUB, IIT PATNA

About IIT Patna, Vishlesan i-Hub

National Innovation Hub: Vishlesan i-Hub at IIT Patna is part of a national mission, advancing AI in speech, video, and text analytics for sectors like health, education, and security.

Premier Technical Institute: IIT Patna is one of India's top engineering institutes, known for its cutting-edge research and strong academic foundation.

Strong Industry & Research Ecosystem: With active collaborations, incubators, and innovation hubs, IIT Patna bridges academia and industry to drive real-world impact.

Why Choose This Course?

- **Real-World AI Projects:** Gain hands-on experience by working on real-world data analytics projects powered by Generative AI.
- **Expert Mentorship & Live Sessions:** Learn directly from top product leaders and AI experts through interactive live sessions.
- **AI Portfolio Development:** Create a standout portfolio by working on AI-driven business solutions, showcasing your ability to tackle real-world problems.
- **Placement Opportunities*:** Receive resume reviews, career coaching, and placement support to land your dream role.
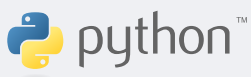
*Eligibility : 7+ CGPA and 65% attendance

What Will You Learn?

This 6 month course teaches you how to use Generative AI, Agentic AI & Data Analytics to make strategic, data driven business decisions through practical projects and real-world case studies. You'll gain hands-on experience in data analysis, predictive modeling and decision-making frameworks.

Toolkit

python™   pandas   matplotlib   NumPy   *& more*

Course Details

Course Duration	Time Commitment
6 Months	8-10 hours per week

Certification
From Vishlesan i-Hub IIT Patna

Course Curriculum

Module 1: Foundations of Data & AI

In this foundational module, we'll set the stage for your AI journey. You will learn the essential data literacy skills required for any AI professional. We'll start with an introduction to basic programming concepts using Python and then move to fundamental tools like SQL and Excel that are crucial for data manipulation and analysis.

- The Data Landscape: Understanding different types of data and the data lifecycle
- Excel Essentials: Cleaning, structuring, and analyzing data using basic spreadsheet functions
- Python for Analytics: Mastering core Python syntax, variables, and data structures
- SQL Fundamentals: Basic querying and managing data in a relational database
- The AI Ecosystem: A high-level, non-technical overview of AI, Machine Learning, and how Generative AI fits into this picture

Module 2: Prompt Engineering & the Power of LLMs

Dive into the most transformative technology of our time: Large Language Models (LLMs). This module focuses on the art and science of "prompt engineering"—the skill of communicating effectively with AI models to get the results you want. We'll also demystify how these models work under the hood by looking at tokens and exploring both proprietary and open-source LLMs. You will move beyond simple questions and learn to craft powerful prompts and even make simple calls to the OpenAI API using Python.

- What is an LLM?: Understanding the basic architecture and capabilities of models like GPT and Gemini
- Prompt Engineering Techniques: Mastering core prompting strategies, from zero-shot to few-shot prompting
- AI-Assisted Writing & Analysis: Using LLMs to summarize articles, generate reports, and assist with creative tasks
- Understanding Tokens: A conceptual overview of how models process information.
- Exploring Open-Source LLMs: An introduction to publicly available models and their use cases
- Interacting with the API: A simple introduction to calling the OpenAI API with Python

Module 3: AI-Assisted Data Wrangling & Insights

Bridge the gap between data and AI. This module is all about using AI as your co-pilot for data analysis. We'll explore how to use readily available AI tools and frameworks to clean, analyze, and visualize data more efficiently than ever before. You'll work with real-world datasets and master essential Python libraries like Numpy and Pandas to uncover meaningful patterns and insights.

- Data Cleaning with AI: Leveraging AI tools to automatically find and fix errors in datasets
- Exploratory Data Analysis (EDA): Using Numpy and Pandas to generate initial hypotheses and summarize key statistics from your data
- AI-Powered Visualization: Creating stunning and informative charts and graphs with the help of AI

Module 4: Introduction to Agentic AI

Move beyond static prompts to dynamic, goal-oriented AI. This module introduces you to the fascinating world of Agentic AI and AI Agents—autonomous AI assistants that can reason, plan, and act to complete complex, multi-step tasks. We'll explore powerful AI automation frameworks like LangChain and CrewAI, and you'll get hands-on experience building your own multi-agent systems. You'll learn to create agents that can use external AI tools to browse the web, analyze data, and execute a sequence of commands, unlocking the true potential of AI automation for real-world problems.

- The Anatomy of an AI Agent: Understanding the core components of autonomous agents, including planning, memory, and tool use
- Building with Frameworks: Getting hands-on with popular frameworks like LangChain and CrewAI to design and build multi-agent systems
- AI Automation & Tool Use: Creating agents that can interact with APIs and online resources to perform tasks like research and data gathering

Module 5: The Capstone Project

This is where you bring all your skills together. In this final module, you will design and build a Capstone Project from scratch, showcasing your ability to apply Generative and Agentic AI principles to a real-world problem. You'll use publicly available datasets and tools to create a project that demonstrates your expertise to potential employers.

- Project Planning: Defining a project scope, identifying a problem, and outlining a solution
- Building an AI-Powered Application: Combining your skills from previous modules to build a complete project
- Presenting Your Work: Learning how to effectively showcase your project and articulate your technical decisions

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

Instructor & Industry Experts

Dr. Surya Prakash
Professor, Department of Computer Science & Engineering, IIT Indore

Prof. Surya Prakash is a distinguished academic with over 12 years of experience in teaching and research, dedicated to nurturing some of the brightest young minds in computer science. He has been an integral part of IIT Indore's growth and served as Head of the Department of Computer Science & Engineering from 2017 to 2020, where he played a key role in shaping the department's academic and research direction.

His research expertise lies in biometrics, with a strong focus on ear biometrics, facial recognition, and biometric database indexing. Prof. Prakash has contributed significantly to the advancement of secure and efficient human identification systems, with a particular emphasis on leveraging deep learning techniques for biometric recognition. His work bridges fundamental research and real-world applications, creating impact in areas such as security, authentication, and AI-driven recognition systems.

Sumit Verma
Co-Founder & CTO at Responsible AI Labs (RAIL)
AI Architect | IIT Kharagpur

Mr. Sumit Verma is at the forefront of shaping the future of ethical AI. With an extensive experience of over five years as a Machine Learning Engineer at Rakuten, Mercari, and OpenSense Labs, he has scaled billion-parameter models, optimized distributed training (ZeRO, FSDP), and enhanced efficiency by 30% through advanced MLOps practices. At RAIL, he spearheads the development of the RAIL Score APIs and frameworks, driving innovation in multi-agent systems and personalization with accountability at the core.

Rituraj Gour
Business Analyst II, Adobe

Rituraj Singh Gour is a data-driven professional with over four years of experience in business analytics and intelligence. He currently serves as a Business Analyst II at Adobe, where he leverages SQL, Python, Tableau, and ETL tools to develop analytical frameworks, optimise processes, and enable data-informed decision-making.

Before joining Adobe, Rituraj worked at Amazon as a Business Intelligence Engineer, where he played a key role in improving user retention by 25%, streamlining customer service operations, and implementing scalable data solutions that enhanced cross-functional visibility.

An alumnus of ABES Engineering College with a B.Tech in Electrical and Electronics Engineering, Rituraj combines technical expertise with strong analytical acumen. His professional interests include data analytics, business intelligence, and process optimisation, and he is passionate about exploring innovative ways to translate complex data into strategic insights that drive business growth.

Admission Process

Clear Qualifier Test
Clear the qualifier test to be eligible for the program.

Complete Counselling
Only shortlisted candidates go through the counselling process.

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

Fees Structure

Qualifier Test Fee (Non-Refundable)	₹99

	Option 1	Option 2
	Upfront	**EMI** (Through our NBFC partners)
Secure Seat Fee (Non-Refundable)	₹4,000	₹4,000
Programme Fee (Non-Refundable)	₹51,085	₹6,527 x 9 months
Total	₹55,085*	₹62,743*

*GST at 18% extra, as applicable