



**Vishlesan i-Hub**  
Indian Institute of Technology, Patna

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Learn in తెలుగు

# Certification in Artificial Intelligence and Machine Learning (Telugu)

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.

## Program Overview

The foundations in Artificial Intelligence and Machine Learning Program is designed to accommodate learners from diverse academic and professional backgrounds. Through structured coursework and hands-on projects, students will build a solid understanding of Artificial Intelligence (AI) and Machine Learning (ML) techniques, starting from foundational mathematics and basic programming, progressing through core machine learning models, and culminating in cutting-edge AI applications. By the end of the program, participants will be able to confidently implement AI/ML solutions, interpret results, and address real-world problems across various domains.



# Why Choose This Course?

- Prestigious certification\* from Vishlesan i-Hub, IIT Patna
- Expert faculty and industry insights
- Real world capstone projects designed to solve practical challenges
- Delivery in Telugu, learn from experts who speak your language
- Placement assistance, resume reviews, coaching  
(Eligibility: 7 CGPA, 65% attendance)

*\*Certificate Eligibility: Minimum 65% overall attendance and 30% marks in cumulative evaluations score*

## What Will You Learn?

Go from zero to job-ready in AI/ML with beginner-friendly, industry-aligned curriculum from I-Hub IIT Patna, taught in Telugu – covering Python, data analysis, machine learning, and generative AI with hands-on projects. Built for beginners, designed to get you building real things fast.

### Toolkit



## Course Summary

**Course Duration**  
5 months

**Weekly Commitment**  
10 Hours/Week

**Certification**  
From Vishlesan i-Hub, IIT Patna

# Course Syllabus

## Module 1: Foundations of Data

- AI vs ML vs GenAI landscape Git/GitHub/CLI VS Code/Colab environments & secrets
- Python for Data (types, flow, functions, files) · notebooks discipline
- NumPy + pandas (indexing, joins/merge, groupby, missing values)
- SQL lite (SELECT/WHERE/GROUP BY + one JOIN) · spreadsheets (pivots, XLOOKUP) · pandas ↔ SQL mental model
- Plotting & storytelling (matplotlib/plotly) · EDA checklist
- APIs (requests, JSON) + basic ethics/ToS · ingest → clean → EDA snack app (optional Streamlit)

### Mini Projects

- CryptoWatch: Real-Time Market Sentiment Tracker
- FoodSafety Insights: Restaurant Inspection Intelligence
- TrendPulse: What Is Actually Trending Right Now

## Module 2: Classical ML

- ML workflow & habits: problem framing, train/validation/test split, baselines, cross-validation, metric tables
- Data prep: missing values, duplicates, categorical encoding, scaling, leakage guard, simple feature engineering (dates, counts), class imbalance basics
- Regression: Linear Regression + regularization; metrics MAE/RMSE/R<sup>2</sup>; quick error analysis
- Classification: Logistic Regression; Trees & Random Forests; metrics accuracy, precision/recall, F1, ROC-AUC; threshold tuning
- Model comparison & selection: choose by metric + simplicity

### Mini Projects

- ChurnGuard — Predicting Customer Exit Before It Happens
- LoanLens — Automated Credit Risk Assessment
- RentRight — Predicting Fair Apartment Prices

## GenAI & Agents

- LLM fundamentals: tokens, context windows, temperature/top-p, cost/latency basics
- Prompting patterns: role, few-shot, CoT; tiny prompt-eval set
- Agents 101 (basics): single agent, 1–2 tools, JSON schemas, retries/backoff, hard stop; mini-build (CSV Analyst or FAQ Helpdesk)
- Function/Tool calling: structured outputs (JSON/validation), idempotent tool design
- Shipping Sprint (FastAPI): wrap the agent as an API ( /chat ) with Pydantic schemas, env/secrets, logging + request IDs; deploy to Render or HF Spaces; run a 10-prompt live eval
- RAG 101: embeddings, chunking, retrievers, vector stores; RAG eval (answer correctness & context recall), semantic search
- Agents + RAG: reuse the Agents 101 loop with a retriever tool; same eval harness
- Orchestration (intro): LangGraph basics—nodes, transitions, retries; ship a small agent flow

### Mini Projects

- DataGenie — Natural Language Data Analyst
- SupportAI — Intelligent FAQ Helpdesk Agent
- ResearchPilot — Automated Market Research Agent

## Multi-Model Answerboard (AI Fiesta-style)

One chat, multiple model answers side-by-side with cost/speed badges; toggle RAG for cited answers and add smart routing + A/B prompt

# English & Soft Skills Training

## Everyday English for Self-Expression

Learn how to talk about yourself comfortably and confidently in common situations

## Building Clear and Correct Sentences

Strengthen sentence formation so your English sounds natural and complete

## Speaking with Impact and Awareness

Learn to organise thoughts, speak smoothly, and communicate with confidence

## Professional Communication & Soft Skills

Apply spoken English skills to professional and workplace-like situations

# Meet our Instructor Team



**Aravind Samudrala**  
Software Engineer, Google

Aravind is a software engineer skilled in building reliable, high-performance systems at global scale.



**Balaji Chippada**  
Senior Data Scientist, Warner Bros Discovery

Balaji is a senior data scientist with extensive experience in building large-scale data and AI solutions.



**Prasad Seemakurthi**  
Ex Software Engineer, Navi

Prasad is an industry professional experienced in developing scalable software solutions in fintech.

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

# 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

<b>Qualifier Test Fee</b> Non-refundable	<b>₹49</b>
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	Option 1	Option 2
	<b>Upfront</b>	<b>EMI</b> (Through our NBFC partners)
<b>Registration Fee</b> Non-refundable	<b>₹2,499</b>	<b>₹2,499</b>
<b>Program Fee</b> Non-refundable	<b>₹23,000</b>	<b>₹8,127 x 3 months</b>
<b>Total Fees</b> Non-refundable	<b>₹25,499 + GST</b>	<b>₹26,880 + GST</b>

\*GST at 18% extra, as applicable

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