

# AI HUB<sup>7</sup>

## AI Agents Fundamentals

From Zero to Building Real AI-Powered Agents

Get Certified in Just 6 Weeks



**6 Weeks**  
Duration



**Certificate**  
of Completion



**Beginner**  
Level

# COURSE INTRODUCTION

The **AI Agents Fundamentals** program is designed to provide learners with both theoretical knowledge and practical skills required to design, implement, and manage modern automation systems in professional environments.

The course emphasizes a structured automation methodology, beginning with the analysis of manual processes, progressing through automation logic design, and culminating in the implementation of end-to-end solutions using industry-relevant tools such as Python, n8n, and Application Programming Interfaces (APIs).

**HANDS-ON  
EXPERIENCE**

**PRACTICAL  
LEARNING**

**CAREER  
READINESS**

## PROGRAM WEIGHT

20%

CONTINUOUS GROWTH  
ADVANCED AUTOMATION TOOLS

30%

KNOWLEDGE EMPOWERMENT



PYTHON

DIAGRAMS CONCEPTS

50%

PRACTICAL LEARNING



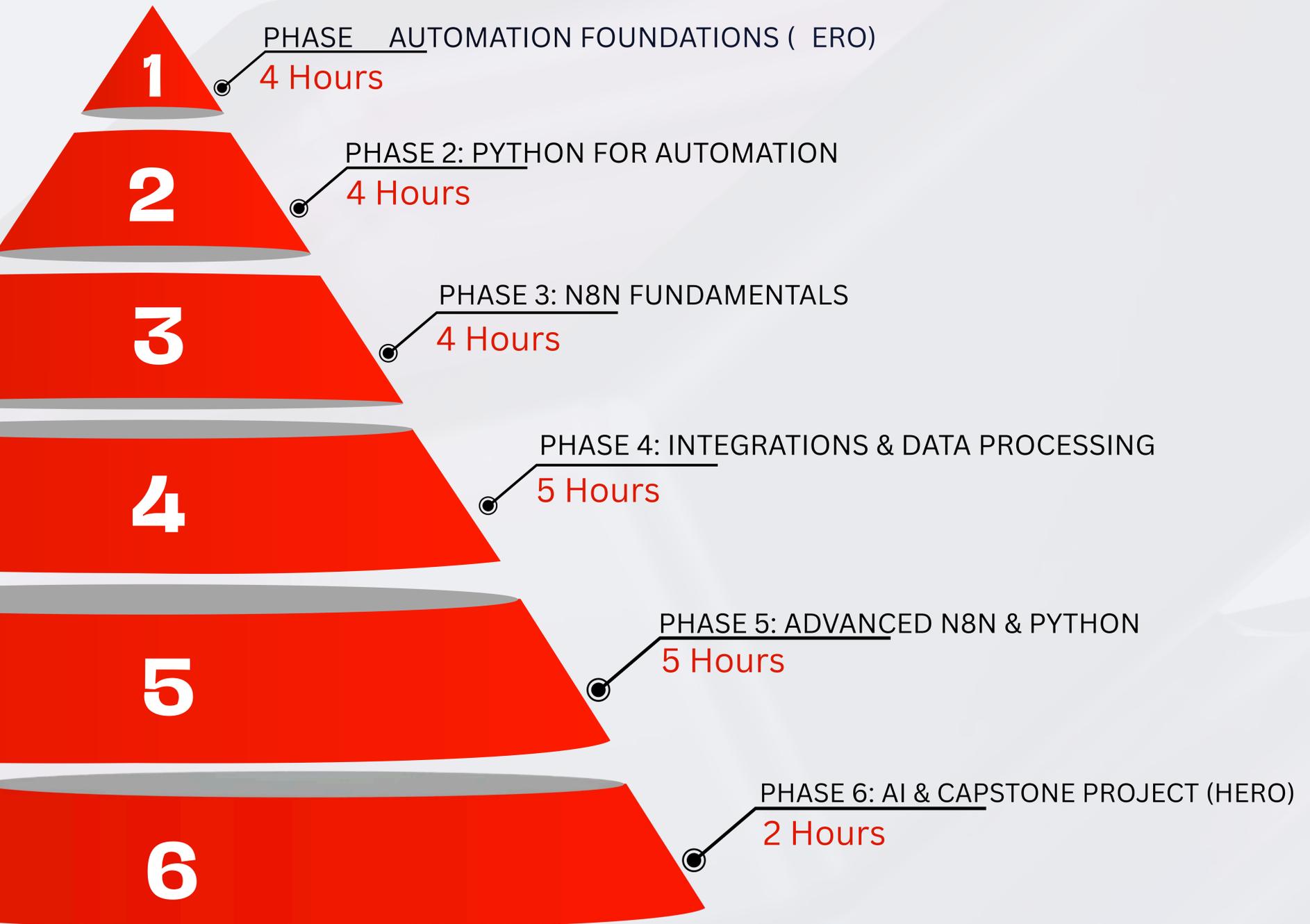
PYTHON



N8N



# AUTOMATION ZERO → HERO



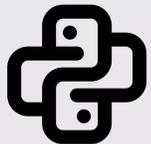
## PHASE 1: AUTOMATION FOUNDATIONS (ZERO) – 4 HOURS

Material Area	Topics Covered
Automation Concepts	What is automation , real-world use cases
Process Analysis	Manual vs automated processes
Automation Components	Triggers, data, logic, actions
Automation Types	Event-based vs scheduled automation
Logic Fundamentals	Conditions, branching, basic error concepts
Workflow Design	Designing automation flows without tools

PSEUDOCODE - FLOW DIAGRAMS

## PHASE 2: PYTHON FOR AUTOMATION – 4 HOURS

Material Area	Topics Covered
Python Basics	Variables, data types, conditions, loops
Automation Logic	Writing decision-based automation scripts
Functions	Reusable functions for automation
File Handling	Reading & writing CSV and JSON files
API Fundamentals	HTTP methods, REST APIs
Error Handling	Validation, exceptions, safe automation practices



PYTHON

## PHASE 3: N8N FUNDAMENTALS – 4 HOURS

Material Area	Topics Covered
n8n Overview	What n8n is, use cases, when to use it
Triggers	Manual, schedule, webhook triggers
Nodes & Data Flow	Node types, data passing, expressions
Conditional Logic	IF and Switch nodes
Error Handling	Basic workflow error handling
Workflow Execution	Testing and running workflows



N8N

## PHASE 4: INTEGRATIONS & DATA PROCESSING – 5 HOURS

Material Area	Topics Covered
API Integration	HTTP Request node, API calls
Authentication	API keys, tokens, credentials management
Google Sheets	Read/write operations, data insertion
Data Transformation	Mapping, filtering, validation
Data Pipelines	Processing incoming records
Monitoring	Logging, pagination, execution tracking



Google Sheets



N8N

## PHASE 5: ADVANCED N8N & PYTHON – 5 HOURS

Material Area	Topics Covered
Python in n8n	Executing Python from workflows
Webhooks	Incoming & outgoing webhooks
Environment Variables	Secure configuration handling
Sub-Workflows	Modular and reusable workflows
Error Workflows	Global error handling strategies
Performance	Optimization and scalability best practices



N8N



PYTHON

## PHASE 6: AI & CAPSTONE PROJECT (HERO) – 2 HOURS + PROJECT

Material Area	Topics Covered
AI Fundamentals	LLM basics for automation
Prompt Design	Writing effective prompts
AI Integration	AI nodes in n8n
Cost Control	Token usage, reliability considerations
System Design	End-to-end automation architecture
Capstone Delivery	Production-style automation project

API  
LLMS



### Weekly Schedule (Ramadan)

Days	Time
<b>Saturday &amp; Wednesday</b>	9:30 PM – 11:30 PM

### Weekly Schedule After Ramdan

Days	Time
<b>Saturday &amp; Wednesday</b>	7:00 PM – 9:00 PM