3-Month AI Agent Mastery Course

Week 1 – Absolute Basics: AI, APIs & Automation

You will learn:

- What is AI, LLM, Prompt, Agent (simple, non-technical intro).
- What are **APIs**, **HTTP**, **JSON** (in very simple terms).
- Intro to **OpenAI / other LLM APIs**: how a chatbot works behind the scenes.
- Overview of **Make** and **n8n** – what they are, where they are used.

Hands-on mini-project:

- Create a simple **"Idea Generator"**:
  - Google Sheet for user input → Make/n8n workflow → call OpenAI → write AI-generated ideas back to Sheet.

Week 2 – No-Code Automation with Make.com

You will learn:

- Make interface: scenarios, modules, triggers.
- **HTTP module** – how to call any AI API (OpenAI, Anthropic, etc.).
- Using **Google Sheets, Gmail, Webhooks** with Make.
- Basics of error handling & logging.

Hands-on mini-project:

- Build a **Content Assistant**:
  - When you add a topic in a Google Sheet → Make calls AI → generates post ideas & emails them to you.

Week 3 – n8n Fundamentals: Visual AI Workflows

You will learn:

- Installing/using **n8n** (cloud or local).
- Nodes, triggers (webhook, cron, manual), basic flow control.
- Connecting n8n with:

- o OpenAI (or similar)
- o Gmail
- o Google Sheets / Notion
- Basic **prompt engineering**: system prompt, user prompt, variables.

Hands-on mini-project:

- Build a **"Reply-to-Email AI Assistant"**:
  - o When a new email arrives → n8n drafts a smart reply using AI → stores draft in Sheet or sends auto-reply.

Week 4 – Multi-step Agents in n8n / Make

You will learn:

- Designing **multi-step agents**:
  - o Collect data → call AI → update CRM/Sheets → send email.
- Using **split, IF, Switch** nodes in n8n.
- Using **Routers, Filters, Iterators** in Make.
- Building **stateful conversations** (passing memory/context in the workflow).

Hands-on mini-project:

- Build a **Lead Qualification Chat Agent (text)**:
  - o User fills a form (Tally/Typeform) or WhatsApp/Telegram → AI qualifies lead → saves to Sheet/CRM → sends email to sales.

Week 5 – Python from Zero (for Automation)

You will learn:

- Python basics (no prior coding required):
  - o Variables, data types, lists, dicts, loops, functions.
- Working with **JSON** in Python (important for webhooks & AI responses).
- Calling APIs using **requests** library.
- Handling secrets (API keys) safely.

Hands-on mini-project:

- Build a **Python script** that:
  - o Takes a topic from the user → calls AI API → saves result into a local JSON/CSV file.

Week 6 – Python for AI Agents & Tools

You will learn:

- Structuring a small Python project.
- Parsing AI responses, adding **guardrails** (e.g., check for missing fields).
- Basics of **vector databases** conceptually (embeddings, similarity).
- Using a simple local file or SQLite/JSON as "memory" for your agent.

Hands-on mini-project:

- Build a **Q&A helper**:
  - Load a small FAQ text file → Python script uses AI + your FAQ text → answers user questions using that context.

Week 7 – FastAPI Basics: Turning Python into Web Services

You will learn:

- What is **FastAPI** and why we use it for AI tools.
- Creating basic endpoints: GET and POST.
- Receiving **JSON from Make/n8n** and returning JSON back.
- Using **Pydantic models** for request/response validation.
- Running FastAPI locally with **Uvicorn**.

Hands-on mini-project:

- Build a **"Custom AI Tool API"**:
  - Endpoint /summarize → accepts text → calls AI → returns summary.
  - Call this endpoint from n8n/Make via HTTP node.

Week 8 – Advanced FastAPI for AI Agents

You will learn:

- Structuring a **multi-route FastAPI project**.
- Handling authentication (API keys, basic security).
- Streaming responses basics (if needed conceptually).
- Integrating with databases (SQLite or Supabase/PlanetScale conceptually).
- Error handling & logging.

Hands-on mini-project:

- Build a **backend for a Lead Assistant**:
  - FastAPI endpoints to:
    - Create lead
    - Qualify lead using AI
    - Return recommended next action
  - Connected to n8n/Make to automate "Notify sales on Gmail/Slack".

Week 9 – Building Real AI Agents (Tools, Memory, Reasoning)

You will learn:

- Agent concepts:
  - **Tools** (APIs your agent can use)
  - **Memory** (short-term vs long-term)
  - **Reasoning** (ReAct-style: think → act → observe → think).
- Using Python with:
  - A framework (LangChain/LangGraph/ custom minimal version – explained at high level).
- Designing tool-based agents that:
  - Call external APIs (weather, CRM, calendar)
  - Decide which tool to use based on user query.

Hands-on mini-project:

- Build an **AI "Task Planner" agent**:
  - User gives a goal → agent breaks into steps → saves a task list in Google Sheets/Notion via n8n/Make.

Week 10 – Intro to Voice AI & Vapi

You will learn:

- What is **Vapi** and how voice AI pipelines work:
  - STT (speech to text)
  - LLM (brain)
  - TTS (text to speech)
- Setting up a basic **Vapi project**:
  - Configuring an assistant.
  - Using built-in logic flows vs connecting to your own backend.
- Designing **call flows** (greeting → questions → branching logic → end-of-call summary).

Hands-on mini-project:

- Create a simple **Inbound Call Bot** using Vapi:
  - Greets the caller, collects name + reason for calling.
  - Sends call summary to your email or Google Sheet via webhook → n8n/Make.

Week 11 – Advanced Voice Agents with Vapi + FastAPI + n8n/Make

You will learn:

- Connecting Vapi to your **FastAPI backend** via webhooks.
- Letting the voice agent:
  - Use Tools (e.g., check availability, create booking, log a lead).
  - Call external APIs via your FastAPI logic.
- Handling edge cases: silence, interruptions, invalid data.
- Logging conversations, saving transcripts.

Hands-on mini-project:

- Build a **Voice-Based Appointment/Lead Agent**:
  - Caller speaks → Vapi + AI collects info (name, phone, interest, time).
  - Your FastAPI endpoint validates + stores data.
  - n8n/Make flow:
    - Creates a calendar event
    - Updates Sheet/CRM
    - Sends confirmation email/WhatsApp.

Week 12 – Final Capstone: End-to-End AI Agent System

You will build a complete system combining everything:

Example capstone (customize as you like):

"Real Estate / Coaching / Service Business AI Assistant"

Includes:

1. **Text Agent:**
   a. Website/WhatsApp form or chatbot → n8n/Make → AI → FastAPI tools → save lead & send email.

2. **Voice Agent (Vapi):**
   a. Inbound phone calls → Vapi voice AI → uses FastAPI tools to:
      i. Check slots
      ii. Book calls/visits
      iii. Log leads in Sheets/CRM
      iv. Trigger n8n/Make workflows.
3. **Backend (FastAPI):**
   a. Endpoints for:
      i. Create/update leads
      ii. Get time slots
      iii. Summarize call or chat history
   b. Connected to a simple DB (or Google Sheets/Notion via API).
4. **Ops & Deployment Plan (basic):**
   a. How to host FastAPI (Render/Railway/other).
   b. How to make n8n/Make workflows robust.
   c. How to test, debug, and improve prompts.