RV Educational Institutions

RV Institute of Technology and Management ®

Bangalore – 560076

Department of Computer Science and Engineering

Event Name	SDP **build with AI, create using AI, and deploy through AI**.
Date	10-12 September 2025
Venue	6th Floor Seminar Hall , RVITM
Audience	5th semester students
Resource person(s)	SUSHANT VASANT PAI
Faculty Coordinator(s)	Padma Sree.N, Uppin Rashmi

Objective of the Program: Build a first-principles understanding of AI.

Topics Covered:
Day 1: Foundations of AI, Machine Learning, and Generative AI

The program aims to equip students with practical, hands-on skills to **understand, build, and deploy AI systems**. It focuses on developing strong foundations in AI concepts, mastering advanced prompt engineering, and using AI tools for coding and real-world problem-solving. By the end of the bootcamp, students will be able to **create AI-driven projects, design effective prompts, work with LLMs, and build functional AI applications** using modern technologies.

Morning (2 hours):

- Socratic introduction:
  How has "AI" evolved? What is ML vs AI vs Generative AI vs Agentic AI?
- Group Activity: Create a mind map showing this transition.
- Mini-case: *India's evolution in the global AI landscape.*

Midday (2 hours):

- Short demo with simple analogies:
  LLMs, transformers, tokenization, embeddings, attention mechanisms.
- Hands-on session:
  Use **Ollama** to download and run a pre-trained local model.
- Critical analysis:
  Compare small vs large models and open-source vs closed-source systems.

Afternoon (2 hours):

- Mini-project (in pairs):
  Create *"A Day in the Life of an AI Agent"* — with diagrams and reflections.
- Peer review + group sharing
- Recap and Q&A

Day 2: Advanced Prompt Engineering and Multimodal AI

Objective: Master prompt design and analysis for text, code, and multimodal AI.

Morning (1.5 hours):

- Interactive lecture:
  Anatomy of a prompt, Zero-shot / One-shot / Few-shot prompting, Chain of Thought.
- Hands-on challenge: *Fix the broken prompt.*

Midday (2 hours):

- Research Lab:
  - Experiment with ChatGPT, Claude, Gemini
  - Use advanced methods:
    Tree of Thought, Step-back prompting, Persona blending
  - Group debate:
    Jailbreaking, bias, responsible use — should you ever "break" an AI? Why or why not?

Afternoon (2.5 hours):

- **Major Project:**
  Teams choose a real-world scenario (customer support bot, creative writing tool, code review assistant, etc.)
  - Craft and test prompts
  - Iterate toward a **Mega Prompt** for their scenario
- **Deliverable:**
  Short video demo + prompt documentation for peer critique

Learning Outcomes (Day 2):

- Understand the structure of effective prompts
- Practice Tree of Thought, step-back prompting, persona blending
- Develop a complete Mega Prompt with a video demonstration

Day 3: Coding With and For LLMs

Objective: Shift from manual coding to AI-augmented development.

Morning (2 hours):

- Workshop:
  - **Vibe Coding:** rapid prototyping using LLMs
  - Prompt engineering for coding tasks (suited for beginners and advanced learners)

Midday (2 hours):

- Lab Session:
  - Use GPT-4o or Claude Sonnet for real coding tasks (Python, JavaScript, etc.)
  - Compare **“English as code”** vs **“Python as code”** and analyze output correctness & safety

Afternoon (2 hours):

- Group Project:
  - Build a simple **RAG App or Chatbot** that answers questions from a sample dataset (documents/website)
  - Presentations + code walkthrough
  - Discussion: *What the AI did well vs what required human correction*

Coordinator Signature **HOD’s Signature**

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