इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
सत्यमेव जयते

एनआईसी National Informatics Centre

AI TECH-BOOTCAMP

Boosting Productivity with AI Tools, Prompt & Context Engineering



THRUST AREA

Prompt Mastery: Precision zero-shot, few-shot, and Chain-of-Thought reasoning.

Context Engineering: Designing enterprise data pipelines and Model Context Protocol (MCP) servers.

Use of AI Tools Transform Your Work. Amplify Your Performance with AI

Sovereign Platforms: Bharat AI Platform, AWARE, and private on-premise SLMs.

NotebookLM

BharatAi

INDIAai

RAG

Module 1 — Foundational Prompt Mechanics

Words vs. Tokens

Word: Natural linguistic unit (e.g., 'running').

Token: Model-dependent sub-word, character, or syllable unit used by NLP tokenizers.

Master Prompt Formula

[TASK] [CONTEXT] [CONSTRAINTS] [FORMAT]

- **Task:** Exactly what the model must do (e.g., 'Summarize this legal circular').
- **Context:** Background domain info, role conditioning, and source boundaries.
- **Constraints:** Length limits (≤ 50 words), style, tone, and negative criteria.
- **Format:** Output structure (bulletted lists, markdown tables, JSON).

Prompting Technique Matrix

Zero-Shot:	Direct command without prior examples.
Few-Shot:	2–3 structured examples demonstrating expected output patterns.
Role-Based:	Instructing the model to adopt an expert persona (e.g., Legal Counsel, System Architect).
Ask-Before-Answer:	Requesting 2–3 targeted clarifying questions before final output generation.
Chain-of-Thought (CoT):	Multi-step step-by-step reasoning for complex decision-making.

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Module 2 — Context Engineering & Governance Deployments

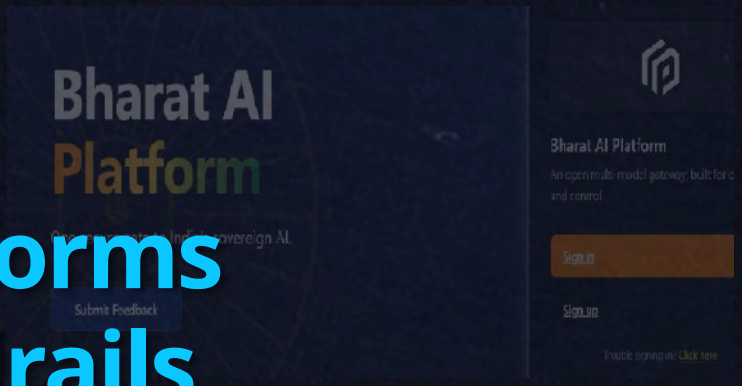
Prompt Engineering:	Context Engineering:
Focuses on what you ask the AI (instruction-focused).	Focuses on what information reaches the AI before it answers.

Real-World Governance Implementations

- **Jalanidhi Phase 2:** On-premise Computer Vision for solar infrastructure verification using mobile App.
- **AgriStack Integration:** Edge-deployed paddy identification AI model saving ₹1.5–2 Cr/month from cloud based automated image verification costs.
- **SAINet (Smart Agriculture Intelligence Network):** Multi-agent orchestration via MCP servers connecting various information sources like DB, API and flat files.
- **GovPULSE:** Perception & Live Sentiment Engine may continuously monitoring newspapers, social channels, and grievance portals for early crisis detection.
- **Billion-Eye:** Citizen smart incident reporting system linking what-where-when to who through a Zero UI app and Computer vision.
- **High Court Legal Defect Bot :** Automated petition screening engine through OCR & VLM and agent based defect verification.



Module 3 — Sovereign Platforms & Ethical Guardrails



Bharat AI Platform (bharatai.gov.in):

- Unified single sign-on via Parichay Authentication.
- Key Services: Multilingual Reasoning, Document & PPT Generation, Code Analysis, Document Summarization, OCR, and Meeting Records via VaartaBharatAI.

AWARE powered RKE (RAG based Knowledge Engine):

- Secured on-premise Vector DBs, private SLMs, and air-gapped data workflows ensuring compliance with government standards.
- No-Code chatbot development

Ethical Guardrails & Responsible AI:

- Confidentiality: Zero leakage of sensitive departmental records or credentials to public tools.
- Human Oversight: Treating model outputs as drafts subject to official administrative verification.
- Governance Standards: Alignment with ISO/IEC 42001 and strict hallucination mitigation.

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