



Children Welfare Centre

Clara's College Of Education,

Affiliated to University of Mumbai

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Value Added Course- 2025-2026

**“TEACHING IN THE AGE OF AI: ESSENTIAL LITERACY
SKILLS FOR PRE-SERVICE TEACHERS”**

Eminent Speaker

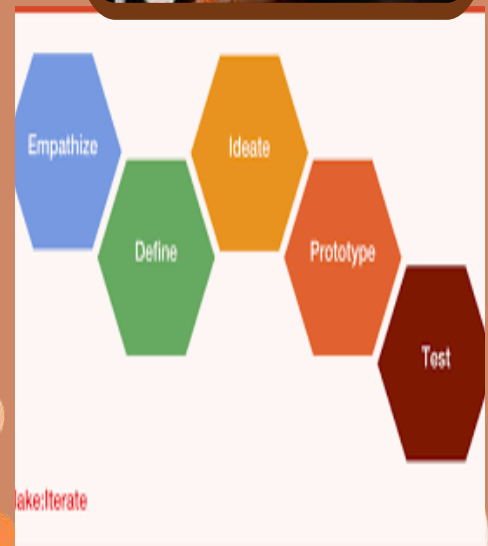
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**Title : “Teaching in the Age of A I: Essential
Literacy skills for Pre-Service Teacher**



‘Teaching in the Age of AI: Essential Literacy Skills for Pre-service Teachers ’

Module-I- Fundamentals of AI

The fundamentals of Artificial Intelligence (AI) revolve around creating machines and computer systems that can perform tasks normally requiring human intelligence.

Here is a breakdown of the core concepts, main branches, and key components:

1. Core Concept: What is AI?

At its core, AI is the simulation of human intelligence in machines programmed to think and learn. Key intellectual tasks AI systems aim to perform include:

- * Learning: Acquiring knowledge and rules for using it.
- * Reasoning: Using rules to reach approximate or definite conclusions.
- * Problem-Solving: Applying the learned knowledge to solve a specific goal.
- * Perception: Using sensory input (like images or sounds) to understand the environment.
- * Decision-Making: Making choices based on data analysis and predictions.

2. Key Components of an AI System

- * Algorithms: These are the set of mathematical instructions or rules that the AI system follows to process data, learn patterns, and make decisions.
- * Data: Data is the "lifeblood" of AI. Systems are trained on vast amounts of data (images, text, numbers) to learn from and make predictions or recommendations.
- * Model Training: The process of feeding the data to the algorithm so it can learn patterns and create a model—a specific representation of the learned information used to perform the desired task.

3. Main Branches and Subsets of AI

AI is an umbrella term that includes several specialized fields:

* Machine Learning (ML): A subset of AI where systems learn from data and improve performance over time without being explicitly programmed. It has three main types:

* Supervised Learning: Training with labeled data (e.g., showing the model pictures of cats labeled "cat").

* Unsupervised Learning: Finding patterns or clusters in unlabeled data (e.g., grouping similar pictures without being told what they are).

* Reinforcement Learning: Learning through trial and error, where the system receives rewards for correct actions.

* Deep Learning (DL): A subset of ML that uses Artificial Neural Networks—algorithms inspired by the human brain—with multiple layers ("deep") to analyze complex patterns in data, such as images, sound, and text.

* Natural Language Processing (NLP): Focuses on the interaction between computers and humans using natural (everyday) language. This includes tasks like language translation, sentiment analysis, and conversational agents (chatbots).

* Computer Vision (CV): Enables computers to "see," interpret, and understand visual data from images or videos. Applications include image recognition, object detection, and facial recognition.

* Robotics: Involves the design, construction, operation, and use of robots. AI enhances robotics by enabling machines to perceive, learn, and make autonomous decisions in their environment.

4. Types of AI (by Capability)

AI is often categorized based on its power or capabilities:

* Narrow AI (or Weak AI): AI designed and trained to perform a single, specific task (e.g., Siri, self-driving cars, a chess program). All current, real-world AI is Narrow AI.

- * Artificial General Intelligence (AGI or Strong AI): A theoretical type of AI that possesses the ability to understand, learn, and apply its intelligence to solve any problem, much like a human being. This does not currently exist.

- * Artificial Super intelligence (ASI): A theoretical AI that would not only mimic or match human intelligence but surpass it in virtually every field, including scientific creativity, general wisdom, and social skills.

Module II

Prompt Engineering

Prompt Engineering in AI is the practice of designing and refining inputs (called "prompts") to guide AI models, especially Large Language Models (LLMs) like those used in chat bots and content generation, toward generating a desired, high-quality output. Think of it as the art and science of communicating effectively with an AI. Since generative AI models are highly dependent on the instructions they receive, a well-crafted prompt is crucial for achieving the best results.

Here are the key aspects of Prompt Engineering:

- * Goal: To steer the AI model's behavior to produce specific, relevant, and accurate responses.

- * Prompt Components: A prompt often includes a combination of:

- * Instructions: Clear commands for what the AI should do (e.g., "Write," "Summarize," "Explain").

- * Context: Background information the AI needs to understand the request.

- * Constraints/Format: Requirements for the output (e.g., length, tone, specific format like a bulleted list or JSON).

- * Examples (Few-shot prompting): Providing a few input-output examples to show the AI the expected pattern.

- * Techniques: Engineers use various techniques to optimize prompts, such as:

- * Zero-shot prompting: Asking the model to perform a task without providing any examples.
- * Few-shot prompting: Providing a small number of examples in the prompt.
- * Chain-of-Thought (CoT) prompting: Instructing the model to show its step-by-step reasoning before giving the final answer, which is especially useful for complex tasks.
- * Importance: As AI models become more powerful and widely used, prompt engineering has emerged as a vital skill that bridges the gap between human intent and machine output.

Essentially, a prompt engineer is a person who uses creativity, linguistic skills, and trial-and-error to figure out the best way to "ask" the AI for what they need.

Module III

Gemini Gems

"Gemini Gems" are a feature within Google Gemini, which is Google's generative artificial intelligence chat bot and assistant.

Gems allow users to create and save custom AI experts tailored to specific needs and preferences. Essentially, you can:

- * Create Custom Assistants: You write instructions, context, and a persona for the Gem, making it a specialized version of Gemini. For example, you can create a "Career Coach" Gem or a "Coding Helper" Gem.
- * Save Time: Gems save your detailed prompt instructions for repeatable tasks, allowing you to get right to the work without re-entering the baseline directives every time.
- * Provide Knowledge: You can upload files (knowledge files) for your Gem to reference, giving it the specific context and resources it needs to be truly helpful.

In short, Gemini Gems AI refers to these personalized, custom AI tools you can build and use within the Google Gemini platform.

Use of Responsible AI

Responsible AI (RAI) is an approach to developing, assessing, and deploying Artificial Intelligence systems safely, ethically, and with trust. It ensures that AI is created and used in a way that prioritizes human well-being and societal values.

The concept of Responsible AI is guided by several core principles:

Core Principles of Responsible AI

| Principle | Description |

| Fairness & Inclusiveness | AI systems should treat all people equitably, without perpetuating biases based on factors like race, gender, nationality, or other protected characteristics. |

| Reliability & Safety | AI systems must perform reliably, safely, and consistently as intended. They should be rigorously tested to prevent unintended harm and misuse. |

| Privacy & Security | Data used to train and run AI must be protected. Systems must comply with privacy laws, use strong security protocols, and protect data from unauthorized access. |

| Transparency & Explain ability | Users should be aware when they are interacting with an AI system. The decision-making process of the AI should be interpretable and explainable to build trust and allow for auditing. |

| Accountability & Governance | There must be clear lines of human responsibility for the outcomes of an AI system. Organizations need established frameworks, policies, and human oversight to manage and mitigate risks. |

Practical Applications of Responsible AI

RAI is being implemented across various industries to manage risk and ensure ethical deployment:

* Healthcare: Using AI diagnostic tools to improve accuracy while mitigating biases that could lead to unequal treatment recommendations. Strict data privacy (e.g., HIPAA compliance) is a key focus.

* Finance/Lending: Employing fair lending algorithms that are transparent and auditable to ensure credit decisions are not discriminatory against protected groups.

* Customer Service: Developing AI chat bots that provide consistent, unbiased, and helpful responses to all customers, regardless of demographics.

* Recruitment: Creating AI-powered hiring tools that are continuously monitored and adjusted to prevent biases that could exclude qualified candidates from certain backgrounds.

In essence, the "use of responsible AI" is a commitment to building technology that is beneficial, trustworthy, and aligned with human values.

Module IV

AI Practices and Tools for Personal Growth

AI (Artificial Intelligence) is increasingly being leveraged for personal growth, offering tools and practices that are highly personalized and adaptive.

Here's a breakdown of AI practices and tools for self-improvement:

I. AI Practices for Personal Growth

These are the ways AI is integrated into the self-improvement journey:

* Personalized Learning and Skill Development: AI platforms analyze your learning style, pace, strengths, and weaknesses to create tailored content and curricula. This could be for language learning (like Duolingo's adaptive algorithms), technical skills, or soft skills like communication.

* Intelligent Coaching and Mentorship: AI chat bots and virtual assistants act as coaches, using behavioral science and cognitive-behavioral therapy (CBT) techniques to

provide personalized guidance. They can offer daily micro-coaching sessions, ask reflective questions, and help you strategize to overcome obstacles like procrastination.

- * **Data-Driven Self-Awareness:** AI analyzes your tracked data (mood, habits, productivity, journal entries) to identify hidden patterns and trends in your behavior and emotions. This provides objective, actionable insights that enhance self-awareness and help you adjust your strategies.

- * **Optimized Goal Setting and Habit Tracking:** AI tools help you break down complex goals into manageable, tangible steps and automate the process of tracking your progress. They can suggest realistic habits aligned with your personal vision and remind you when to engage in them, often using gamification to boost motivation.

- * **Mental Wellness and Emotional Support:** AI-powered tools offer 24/7 support for mental health, providing techniques for stress management, mood tracking, and even virtual therapy sessions based on CBT. They are often perceived as less judgmental, which can facilitate self-disclosure.

- * **Productivity and Time Management:** AI analyzes your daily routines and workload to suggest optimizations, automate repetitive tasks, and predict your peak productivity times, helping you create schedules that maximize efficiency and focus.

II. Examples of AI-Powered Tools

Specific tools often fall into several categories:

Category	Examples of Tools/Types	Functionality
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AI Life Coaching	Rocky.ai , Hapday - AI Life Coach, Sapio AI	Guided coaching sessions, personalized development plans, reflection prompts, and real-time advice on habits and goals.
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| Mental Wellness | AI-based meditation apps, emotional health chatbots (e.g., Woebot, Clearmind) | Mood tracking, stress management, personalized guided meditation, and access to CBT techniques. |

| Habit & Goal Tracking | Habitica (gamified), [Coach.me](#), apps with AI-driven habit features | Breaking down goals, tracking daily habits, gamification for motivation, and built-in coaching for accountability. |

| Personalized Learning | Duolingo (adaptive language learning), personalized education platforms | Tailoring content, difficulty, and pace to individual learning profiles and correcting errors in real-time. |

| Productivity & Time Management | Notion (AI features), [Reclaim.ai](#), intelligent calendar/task apps | Scheduling optimization, blocking out focused work time, automating tasks, and prioritizing based on goals. |

| Generative AI | Chat GPT, Claude, Gemini | Creating personalized learning primers, acting as a sparring partner for communication practice, generating detailed goal-achieving plans, and providing journaling prompts. |

Module -V

Best Practices for Using AI Tools

To maximize the benefits of AI for personal growth, it's essential to use them effectively:

- * **Define Your Goal:** Clearly articulate what you want to achieve (e.g., better sleep, learning a new skill, improving communication) before choosing or prompting an AI tool.
- * **Use AI as a Guide, Not a Guru:** View AI suggestions and feedback as data-driven advice, but always filter it through your personal intuition, values, and real-world context.
- * **Provide Context and Be Specific:** The more detailed information you provide to an AI coach or chat bot, the more personalized and effective its responses and plans will be.

* **Practice Reflection:** Do not rely solely on the AI's analysis. Regularly set aside time to reflect on your progress, both the data the AI provides and your personal feelings about your journey.

* **Focus on Consistency:** AI tools thrive on data. Commit to consistent use, especially for habit and mood trackers, to allow the algorithms to learn your patterns and provide the most accurate insights over time.



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