

AI Integration Manual

How to Integrate AI Tools into Curriculum

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Overview

Welcome to the AI Integration Manual, a practical guide to integrating artificial intelligence into education. As technology continues to transform teaching and learning, this manual provides clear direction for implementing AI effectively in instructional settings.

AI can be used to enhance a variety of educational programs. With proper integration, it can be leveraged to make learning more engaging and effective. Hands on activities that include exploration, critical examination, discussion, and reflection creates a positive environment where students can explore the ways AI can be additive to their learning.

Teaching and Learning Scenarios

Review targeted examples that demonstrate how AI can be incorporated into diverse classroom contexts. These use cases offer practical models to support instructional innovation and improved student outcomes.

Mini-Lessons and Activities

Access ready-to-use mini-lessons and activities designed to enhance engagement, interactivity, and learning efficiency through AI integration.

Monitoring and Assessment

Explore structured strategies to guide students in responsibly leveraging AI, monitor progress, and assess effectiveness. Each section equips educators with actionable strategies, tools, and insights to confidently apply AI in modern classrooms and support student success in a digital environment.

Teaching and Learning Scenarios

AI Content Detector

Description

An AI content detection tool is designed to determine whether text has been generated by artificial intelligence systems. These platforms analyze linguistic patterns, structure, and other statistical markers commonly associated with machine-generated writing and often claim high accuracy rates in distinguishing between human and AI-produced content.

Many of these tools also offer features that revise or paraphrase text to make AI-generated material appear more natural and human-authored, with the goal of reducing the likelihood of detection by similar systems. Such services are typically marketed to professionals, such as marketers, writers, and content creators, who want to preserve an authentic tone while leveraging AI-assisted drafting.

Learning Outcome

- Computing innovations are developed to address specific problems, support personal or community needs, or enable new forms of creative expression.
- Abstraction means simplifying something complex by emphasizing the essential idea. It removes unnecessary details and groups meaningful information, so the core concept is easier to understand and use.
- Programs can analyze and handle data in ways that help uncover meaningful information.
- When working with information, programs often use repeated and interactive steps, helping users explore data, recognize patterns, and build deeper understanding.

Activity

Activity	Description
Introduction	- Introduce the AI text analysis tool and its purpose. - Discuss why identifying AI generated vs. human written content matters.
Exploration	- Students use the tool to examine sample texts. - Discuss how the tool hides complex processes (e.g., NLP, semantic analysis) behind a simple output.
Investigation	- Explore how the tool interprets and processes written language. - Analyze different texts to determine whether content is AI generated or human created.
Demonstration	- Review how algorithms enable the tool to process and evaluate data. - Discuss the role of data analysis in generating results.
Hands-On Activity	Students use the tool themselves to assess a variety of texts.
Group Discussion	- Evaluate the tool’s accuracy, real-world usefulness, and potential risks. - Reflect on how AI tools influence content production, verification, and public trust.

AI Image Generator

Description

This free platform offers reusable stylistic templates for AI-driven image generation. Users can copy a structured prompt, modify the subject matter, and input it into their preferred image-generation system to produce visuals in a consistent style.

These templates are compatible with a range of generative image tools, including diffusion-based models and other text-to-image platforms that support custom prompt inputs.

Learning Outcome

- Computing tools and systems are created to address needs, tackle challenges, or support personal and creative goals.
- Abstraction is the practice of simplifying something complex by highlighting the essential idea. It removes unimportant details and organizes meaningful information, so the main concept becomes clearer and easier to work with.
- Software can analyze and manipulate data to reveal useful insights.
- When programs handle information, they often do so through repeated and interactive steps that help users discover patterns, deepen understanding, and build knowledge.

Activity

Activity	Description
Introduction	- Introduce the tool and its purpose in generative AI. - Explain what generative AI is and how it supports creative tasks such as producing images, text, or other digital content.
Exploration	- Guide students in using the tool to create content by entering prompts. - Discuss how the system hides complex AI operations and presents a simple, user-friendly interface.
Investigation	- Lead a conversation about how prompts function as structured data within the tool. - Emphasize how this input data is used to generate creative AI outputs.
Demonstration	- Have students use the tool to turn prompts into images or written content - Discuss how raw data (the prompt) becomes a final product (generated content).
Hands-On Activity	- Allow students to independently experiment with generating content. - Highlight how changes in input prompts influence the AI’s output.
Group Discussion	- Facilitate a discussion on the tool’s capabilities and potential real world uses. - Encourage students to reflect on how AI systems shape creative work and influence modern content creation.

Creative Writing Assistant

Description

This creative AI application is designed to support digital content creation by automating and enhancing various aspects of the creative workflow. By leveraging artificial intelligence, it streamlines technical and repetitive tasks, enabling creators to focus more on conceptual development and artistic execution. The tool is integrated within a broader suite of creative software applications, allowing for cohesive and efficient user experience across design, imaging, and multimedia projects.

Learning Outcome

- Computing innovations are created to address challenges, meet specific needs, or support creative and personal interests.
- Abstraction is a way of simplifying complex ideas by emphasizing the essential concept. It removes unnecessary details and groups together the information that truly matters, making it easier to concentrate on the main idea.
- Software can be designed to analyze and work with data to uncover meaningful information.
- When programs handle information, they often rely on repeated and interactive processes that help users explore data, gain insights, and build understanding.

Activity

Activity	Description
Introduction	- Introduce a tool that uses generative AI for creative work. - Explain how it converts input such as written descriptions or simple sketches into graphic designs.
Exploration	- Have students experiment with producing graphics using various types of inputs. - Discuss how the tool simplifies complex AI operations to deliver polished visual outputs from straightforward prompts.
Application	- Lead a discussion on how the tool interprets and encodes different inputs. - Emphasize how text or sketch-based data is transformed into detailed visual content.
Demonstration	- Explore how underlying AI models analyze and process user inputs. - Discuss the algorithmic methods that enable these models to generate creative outputs.
Hands-On Activity	- Allow students to work directly with the tool to create their own visual content. - Highlight how changes in prompts or sketches immediately influence the final generated result.
Group Discussion	- Facilitate a conversation about the tools capabilities, strengths, and potential real world uses. - Encourage students to reflect on how AI tools influence creative workflows and artistic production.

Audio Transcription

Description

This audio transcription feature is part of a digital recording and editing platform designed for podcasting and video production. It uses AI to generate transcripts from recorded audio, supporting a wide range of languages and offering high levels of claimed accuracy.

By automatically converting speech to text, the feature streamlines the creation of captions and written transcripts, improving workflow efficiency for content creators, including podcasters, video producers, and marketing professionals.

Learning Outcome

- Computing innovations are created to address real-world challenges, support personal goals, or enable new forms of creative expression.
- Abstraction is a method for simplifying complex ideas by concentrating on what is most essential. It filters out unnecessary details and organizes the important information, so the core concept becomes clearer and easier to work with.
- Computer programs can take in, organize, and analyze data to reveal useful information.
- When information is processed, programs often use repeated and interactive steps that help users explore the data more deeply and develop meaningful insights.

Activity

Activity	Description
Introduction	- Introduce the transcription tool and explain that its purpose is to convert audio or video into written text. - Discuss how AI supports modern transcription by recognizing speech patterns and converting sound into readable language.
Exploration	- Demonstrate how the tool processes an audio clip and produces a text transcript. - Highlight the step-by-step flow from spoken input to written output.
Application	- Have students use the tool to transcribe a sample audio file. - Emphasize how the system analyzes raw audio data to identify words, phrasing, and meaning.
Demonstration	- Explore how the tool’s AI models interpret sound waves and convert them into structured text. - Discuss the algorithms and data processing techniques that enable accurate transcription.
Hands-On Activity	- Engage students in hands on use of the tool. - Focus on how the AI adapts to varying voices, tones, speeds, and background noise during transcription.
Group Discussion	- Facilitate a conversation about the tool’s performance, strengths, and limitations. - Encourage students to reflect on the broader role of AI in processing, interpreting, and transforming audio data.

Image Generation

Description

This web-based application uses artificial intelligence to generate images from a single text prompt. It aggregates outputs from multiple generative image models, allowing users to compare and select from a range of stylistic interpretations within one interface.

Built for accessibility and flexibility, the platform leverages advanced generative neural networks to produce realistic and distinctive visuals based on user input. It can support a variety of users, including designers, marketers, content creators, and researchers seeking rapid visual prototyping or creative inspiration.

Learning Outcome

- Computing tools and systems are created to address specific challenges, support personal interests, or provide new ways for people to express their ideas creatively.
- Abstraction is a strategy for managing complexity by zeroing in on the most important concept. It removes details that aren’t necessary and groups together the information that truly matters, making the overall idea easier to grasp.
- Computer programs can take data, organize it, and transform it into ways that reveal meaningful information.
- When working with data, programs often rely on repeated and interactive processes, giving users the chance to explore information more deeply and develop clearer insights.

Activity

Activity	Description
Introduction	- Introduce a tool that uses AI to generate images. - Explain how it converts user written prompts into visual artwork.
Exploration	- Demonstrate how the tool streamlines the image generation experience. - Discuss the idea of abstraction, how complex AI processes are hidden behind an easy-to-use interface.
Investigation	- Have students experiment by entering different prompts to create images. - Emphasize how written descriptions are transformed into visual results.
Demonstration	- Explore how the tool processes data to produce images. - Discuss the AI algorithms that interpret prompts and guide the generation of visual content.
Hands-On Activity	- Allow students to try a variety of prompts and observe how the tool responds. - Highlight the interactive nature of generative AI and how user input directly shapes the output.
Group Discussion	- Facilitate a discussion about the tool’s creative applications and where AI generated imagery is used in real industries. - Encourage students to reflect on how the prompt to image process works and how AI influences artistic creation.

File Conversion

Description

AI-enabled document platforms can convert static PDF files into interactive, searchable resources. They allow users to engage directly with documents by asking questions, generating summaries, and quickly locating relevant information. The system incorporates optical character recognition (OCR) to transform scanned PDFs into editable, searchable text. It also includes advanced search and document organization features to improve information retrieval and workflow efficiency.

Such tools are useful for managing complex materials, including legal contracts, financial statements, and technical documentation. They also support students and professionals who need to analyze, study, or extract insights from detailed documents.

Learning Outcome

- New computing creations are developed to address needs, overcome challenges, or support personal interests through inventive and expressive uses of technology.
- Abstraction helps manage complexity by spotlighting the core idea. It removes information that doesn’t matter to the task and organizes the important details, so the main concept becomes easier to understand.
- Programs can take in data, reorganize it, and examine it in ways that help reveal meaningful information.
- When handling information, programs often use repeated cycles and user-driven interactions that help people explore data more deeply and discover insights.

Activity

Activity	Description
Introduction	- Explain that the tool is designed to convert PDFs into interactive, searchable, and easily navigable documents. - Discuss how AI helps interpret large amounts of text, identify patterns, and understand document structure.
Exploration	- Have students use the tool to analyze sample PDFs and extract information - Highlight how the system pulls out key details, organizes content, and presents it in a more accessible format.
Investigation	- Students will use the tool to examine sample PDFs and pull-out important information. - The activity will show how the system identifies key details, organizes them, and displays the content in a more user-friendly way.
Demonstration	- Explore how the tool processes document data behind the scenes. - Discuss the AI models and algorithms that interpret text, recognize formatting, and understand context within a PDF.
Hands-On Activity	- Allow students to work directly with the tool to upload and analyze various documents. - Emphasize how AI dynamically adapts to different layouts, text styles, and document types during processing.
Group Discussion	- Facilitate a conversation about the tool’s strengths, limitations, and real world uses in fields like research, business, and education. - Encourage students to reflect on how AI enhances document comprehension and assists with extracting meaningful information.

AI Code Assistant

Description

AI-powered coding assistants are designed to improve development speed, accuracy, and overall code quality. It provides an interactive interface where users can request explanations, generate code suggestions, receive optimization guidance, and create unit tests through built-in shortcuts.

The system can be customized to specific projects, enabling more context-aware and precise responses. It also supports natural language search across codebases, helping developers quickly locate relevant functions, files, or documentation. Compatible with multiple programming languages, the tool is typically available for individual use at no cost, with scalable solutions for enterprise environments. It is particularly valuable for software developers seeking to streamline workflows and reduce errors throughout the development lifecycle.

Learning Outcome

- Computing innovations are designed to tackle specific problems, support individual goals, or enable people to express ideas in creative ways.
- Abstraction is a technique used to simplify complex situations by centering attention on the most important concept. It removes details that aren’t necessary and organizes the meaningful elements, so the main idea becomes easier to work with.
- Programs can take raw data and transform it into information that is useful and understandable.

- When information is processed, programs often rely on repeated steps and interactive methods that help users explore the data and develop clearer insights.

Activity

Activity	Description
Introduction	- Explain that the tool functions as an AI powered assistant designed to support coding tasks. - Discuss how AI can simplify programming by offering suggestions, improving code quality, and assisting with problem solving.
Exploration	- Demonstrate how the tool can break down and manage complex programming tasks. - Introduce the idea of abstraction, showing how AI hides lower-level complexities and helps programmers focus on core logic.
Demonstration	- Use the tool during coding exercises to show how AI can generate, refine, or optimize code. - Discuss how the system interprets programming languages and processes code related data.
Hands-On Activity	- Have students work directly with the tool in a live coding session. - Emphasize how AI responds dynamically to user input, offering real time feedback and suggestions.
Group Discussion and Reflection	- Facilitate a conversation about the tool’s usefulness, strengths, and practical applications in software development. - Encourage students to reflect on how AI is influencing the way programmers write, debug, and think about code.

Presentation Creation

Description

This AI-enabled presentation platform integrates an interactive canvas with generative storytelling capabilities to support rapid content creation. Users can generate presentations, structured outlines, or narrative content with minimal input, streamlining the drafting process.

The tool allows customization of visual elements such as themes, color palettes, and typography, and supports integrated narration recording. An AI-driven editing feature can also refine or rewrite content to improve clarity, tone, or structure.

Learning Outcome

- Computing innovations are created to address specific needs, offer solutions to challenges, or support people in expressing their ideas in creative ways.
- Abstraction helps simplify complex concepts by emphasizing the essential idea. It sets aside information that isn’t necessary and brings important details together, so the key point becomes clearer and easier to understand.
- Computer programs can take in data, reorganize it, and analyze it to produce information that is meaningful and useful.
- As programs handle information, they often use repeated steps and interactive methods that allow users to explore data more thoroughly and gain deeper insight.

Activity

Activity	Description
Introduction	- Introduce the tool as an AI powered platform designed to support storytelling and narrative development. - Discuss how AI contributes to creative writing by generating ideas, shaping story structure, and enhancing descriptive detail.
Exploration	- Demonstrate how the tool expands prompts, builds narrative elements, and suggests creative directions. - Discuss the technological innovation behind AI driven content creation and how it supports writers in developing stories.
Demonstration	- Use the tool to create story samples, highlighting how users interact with its features during the writing process. - Discuss how AI influences narrative outcomes by interpreting user input and guiding the evolution of the story.
Hands-On Activity	- Have students create their own stories using the tool, experimenting with prompts, genres, and styles. - Emphasize how the tool processes user inputs and turns them into cohesive, meaningful narrative content.
Group Discussion	- Facilitate a conversation about the tool’s strengths, practical uses, and its potential role in creative industries. - Encourage students to reflect on how AI intersects with human creativity and how it may shape storytelling in the future.

Internet-enabled AI Assistant

Description

This browser-based AI assistant is designed to enhance web navigation by integrating conversational support, content generation, and access to live online information within the browsing environment. By embedding artificial intelligence directly into the browser experience, it aims to streamline research, drafting, and retrieval in real time, creating a more interactive and productivity-focused workflow.

Learning Outcome

- Computing innovations are developed to meet needs, resolve challenges, or help individuals express their ideas in imaginative ways.
- Abstraction is a method for handling complex ideas by concentrating on the central concept. It removes details that aren’t necessary and organizes the meaningful information, so the main point becomes clearer and more manageable.
- Programs can take raw data and transform it through various operations to produce information that is useful and understandable.
- When programs work with information, they often rely on repeated steps and user-guided interactions, which help people explore data, notice patterns, and gain deeper insights.

Activity

Activity	Description
Introduction	- Introduce the tool as a platform that enhances web browsing through AI powered features. - Discuss how AI helps interpret, understand, and interact with online content in more meaningful ways.
Exploration	- Demonstrate features such as content summarization, quick insights, or context aware browsing support. - Discuss the innovative role AI plays in making web navigation faster, smarter, and more efficient.
Program Behavior	- Use the tool during live browsing to highlight its AI driven capabilities. - Discuss how AI shapes the way users interpret and engage with online information.
Data Processing and Insight Generation	- Guide students in using the tool for research tasks. - Emphasize how AI processes large amounts of web content and produces summaries or key insights.
Algorithm Development and Implementation	- Facilitate a conversation about the algorithms that enable the tool's AI features. - Encourage students to think about how these algorithms analyze data, detect patterns, and produce helpful outputs.
Group Discussion	- Discuss the tool's strengths, challenges, and potential in modern web browsing. - Encourage students to reflect on how AI is transforming the way people access, understand, and interact with information online.

Monitoring and Assessment

Here are best practices for Instructors to monitor and assess the use of AI tools in the classroom.

Tracking Student Progress

- Hold regular check-ins with students to review how they are using AI tools and how their Create task is progressing, helping identify early signs of over-dependence on AI.
- Establish clear checkpoints throughout the task and observe how students advance toward each stage, ensuring AI support is being used appropriately and not replacing core learning.

Evaluating Ethical Use

- Ask students to clearly document when and how AI tools assisted them, distinguishing between outputs created by the AI and work they completed independently.
- Conduct occasional spot-checks to verify students are following ethical guidelines and not submitting AI generated content as fully original work.

Assessing Understanding

- Require students to explain the reasoning behind the code they submit, especially in sections where they used AI support, to ensure they truly grasp the concepts involved.
- Hold short oral check-ins where students describe their project and how AI contributed to their process, providing insight into both their understanding and decision-making.

Quality of Code

- Facilitate peer review sessions where students evaluate each other's code, encouraging stronger coding practices and deeper comprehension.
- Compare student submissions against recognized coding standards or best practices to assess their technical skill and growth over time.

Reflective Practice

- Have students keep a reflection log or journal describing how they used AI tools, the obstacles they encountered, and how they resolved issues. This promotes metacognition and responsible tool use.
- Provide feedback on these reflections to help students develop awareness about their learning process and make more intentional choices about when and how to use AI.