

List of artificial intelligence courses

| Number | Course Title | Course Content | Remarks | Duration |
|--------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------|
| 1 | The Role of Artificial Intelligence in STEAM Education | <ul style="list-style-type: none"> • Understand AI Principles • Experience AI-Enhanced Teaching Tools • Apply AI in STEAM Activities • Teach Students to Use AI Responsibly to Enhance Learning | Teacher | |
| 2 | Information Technology Education Pedagogy Series: Applying Artificial Intelligence in Education | <ul style="list-style-type: none"> • Empower teachers to implement information literacy across the curriculum—including General Studies at the primary level and Citizenship and Social Development at the secondary level • Introducing research-based pedagogies and guiding them in selecting age-appropriate information-technology tools. | Primary and Secondary School Teachers | 9h |
| 3 | Artificial Intelligence and Data Analytics (Colab) | <ul style="list-style-type: none"> • Introduction to Artificial Intelligence, Data Science, and Their Applications • Understanding Various Data-Analysis Techniques • Conducting and Interpreting Scientific Data Analysis with Google Colaboratory | Teacher | 3h |
| 4 | Artificial Intelligence and Data Analytics (Orange) | <ul style="list-style-type: none"> • Introduce the role of AI in data analysis • Provide an overview of AI-powered tools for data analysis • Hands-on: Use Orange Data Mining to conduct and interpret scientific data analysis | Teacher | 3h |
| 5 | Using AI for Scientific Modeling | <ul style="list-style-type: none"> • Introduce the concept of scientific modeling and its importance in teaching • Explore how AI can help create more realistic scientific models • Hands-on: Build simple scientific-experiment models using AI simulation tools | Teacher | 1.5h |
| 6 | Applications of Machine Learning in Scientific Experiments | <ul style="list-style-type: none"> • Introduce the fundamentals of machine learning and its applications in scientific inquiry. • Learn to design scientific experiments that generate data for training machine-learning models. • Case study: Examine successful examples of AI-driven scientific discoveries. | Teacher | 1.5h |
| 7 | Introduction to Emerging Technologies, Information Literacy, and Ethics Education | <ul style="list-style-type: none"> • Introduce different categories of AI (e.g., Narrow AI, General AI) • Discuss ethical considerations before deploying AI—privacy, bias, and transparency • Explore AI-powered generative-art tools and their applications • Hands-on: Create AI-generated artworks and perform character replacement | Teacher | 3h |

List of artificial intelligence courses

| Number | Course Title | Course Content | Remarks | Duration |
|--------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----------|
| 8 | Designing science exercises and lesson plans with generative AI | <ul style="list-style-type: none"> •Learn to design science exercises and lesson plans with generative AI •Understand the fundamentals and techniques of prompt engineering •Hands-on: Use an online platform to generate science questions, rubrics, and an AI chatbot •Group discussion: Share and reflect on the practical outcomes | Teacher | |
| 9 | Introduction to Artificial Intelligence and Its Applications | <ul style="list-style-type: none"> •Understand the principles of AI •Experience AI tools such as generative AI and deepfake technology •Learn the ethical and responsible use of AI •Discover how to leverage AI to enhance learning | Student | |
| 10 | AI-controlled omnidirectional vehicle | <ul style="list-style-type: none"> •Program microcontrollers such as the Micro:bit and Arduino •Operate the AI vision sensor Huskylens •Assemble an AI-controlled omnidirectional vehicle | Student | |
| 11 | Introduction and Hands-on Practice of Artificial Intelligence and the Internet of Things | <ul style="list-style-type: none"> •Introduce the concepts of AI, Machine Learning, and the Internet of Things (IoT) •Hands-on: Train AI models for image, audio, and human-pose classification •Utilize online cloud services and an IoT lab kit (microcontroller board, sensors, circuitry, etc.) •Learn C++ programming, set up the development environment, and program the microcontroller to implement IoT applications | Middle school students / Beginner-friendly introduction | 15h |
| 12 | Game Design and Business Models – Generative AI Development | <ul style="list-style-type: none"> •Explore cutting-edge technologies used in modern video games •Understand game design through the lens of game theory •Investigate player needs and motivations from a psychological perspective to craft engaging experiences •Learn to use AI assistants and generative AI tools •Grasp programming fundamentals and game logic •Master Lua scripting in Roblox Studio | Middle school students / Beginner-friendly introduction | 15h |
| 13 | The Metaverse and Virtual Reality in Modern Technology | <ul style="list-style-type: none"> •Master the fundamentals of Virtual Reality (VR) and Augmented Reality (AR) •Grasp the core concepts behind virtual worlds, blockchain, and NFTs •Understand programming principles and game logic •Learn to build 3D scenes with CoSpaces, The Sandbox, and Buildbox •Create NFT assets using VoxEdit | Middle school students / Beginner-friendly introduction | 15h |
| 14 | Python and the Development of Advanced AI Applications | <ul style="list-style-type: none"> •Master intermediate to advanced concepts in artificial intelligence and machine learning. •Learn to build and deploy AI applications using Python. •Gain deep insight into the extensive, real-world applications of AI across diverse industries. | Middle school students / Beginner-friendly introduction | 18h |