



# FACILITATE-AI

GUIDELINES FOR FACILITATING THE LEARNING OF ARTIFICIAL INTELLIGENCE  
BY SCHOOL STUDENTS OF GRADES 7-12

## Guidelines for facilitating the learning of Artificial Intelligence (AI) by School Students of Grades 7-12

Reference Number: 2021-1-CY01-KA220-SCH-000032567

### C2 Training course: **Verification of training curriculum and developed learning materials**

#### Result 2 – A3

**Module Number and Area/Topic:** Module 3.5 – AI in STEAME

**Module owners:** Ivan Apostolov

#### **Introduction and Broad Description of the Context and Goal of the area/topic addressed**

In the 21<sup>st</sup> century, we cannot have technology without including AI in it. As an extensively researched and developed area, STEAME education also needs to address artificial intelligence and how we can use it to our own advantage – responsibly of course. Hands-on learning is what really interests students, so a practical approach needs to be used whenever possible. The learning activities are focused on doing and understanding. Students first understand the concept of AI and then use their tech knowledge to present the applications of AI with code. They are divided into teams and tasked with figuring out different ways to use AI in Science, Business, Engineering and Art. The role of the teachers is crucial, as they are the facilitators of the whole learning process and need to understand a broad range of AI aspects.

#### **Learning objectives and learning outcomes**

- To **recognize** the different types of machine learning.
- To **relate** machine learning algorithms from games to real life problems.
- To **identify** problems that can be solved using AI.
- To **discuss** different ideas and concepts in AI freely.
- To **explain** the differences between the different types of machine learning.
- To **apply** basic machine learning knowledge in the creation of simple ML models.
- To **understand** the mathematics behind AI.
- To **analyze** scientific information properly.
- To **classify** data according to certain features.
- To **assess** students individually and as teams.
- To **create** simple ML models.
- To **estimate** whether a model is appropriate for a problem.
- To **experiment** with different models in solving a problem.
- To **track** the progress of students.

#### **Competences**

- Actively engaging in Learning
- Creatively using & interacting with digital technology
- Exploring & evaluating information and digital content
- Critical navigation
- Developing digital content
- Managing data and digital content

- Actively engaging in communication
- Actively engaging in collaboration
- Collaborating through digital technologies
- Communicating computational thinking
- Communicating technology responsively
- Sharing through digital technologies
- Actively enabling in creation
- Creatively using digital technology
- Adapting technology to create knowledge
- Proposing creative solutions to problems
- Awareness of machine ethics
- Selecting, organizing and sharing of data

**Instruments/Tools/Supporting Material/Resources to be used:**

- [STEAME](#)
- [Learning with STEM](#)
- MS PowerPoint – to create presentations for different STEAME areas
- [Dall-E 2](#) – to create images using AI
- Google Colab – for presenting ML models easily
- MS Excel and [Kaggle](#) to examine different datasets
- E-learning platform
- Online communication platform – Google Meet, Discord, etc.

<b>PART 1</b>	
<b>Learning Objectives</b>	Presenting the “ <b>STEAME in AI</b> ” Learning and Creativity plan with a PowerPoint presentation. Trainees will understand: <ul style="list-style-type: none"> <li>● What they need to prepare in order to execute the L&amp;C Plan: work plan, AI information, assessment and self-assessment criteria, evaluation criteria</li> <li>● Some basic AI concepts</li> <li>● How to organize an ethics debate</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>● Successfully implement the L&amp;C plan in the classroom</li> <li>● Critically assess students’ progress</li> <li>● Use the AI concepts properly</li> <li>● Link AI to STEAME</li> </ul>
<b>Competences</b>	<ul style="list-style-type: none"> <li>● Creatively using &amp; interacting with digital technology</li> <li>● Critical navigation</li> <li>● Collaborating through digital technologies</li> <li>● Communicating computational thinking</li> <li>● Communicating technology responsively</li> <li>● Adapting technology to create knowledge</li> </ul>
<b>Activities</b>	Various brainstorming challenges Introducing AI tools

<b>PART 2</b>	
<b>Learning Objectives</b>	Creation of a PowerPoint Presentation
<b>Learning Outcomes</b>	Create a PowerPoint presentation with tasks and examples for students
<b>Competences</b>	<ul style="list-style-type: none"> <li>● Sharing through digital technologies</li> <li>● Managing data and digital content</li> <li>● Adapting technology to create knowledge</li> <li>● Selecting, organizing and sharing of data</li> <li>● Proposing creative solutions to problems</li> </ul>
<b>Activities</b>	Creation of a PowerPoint Presentation

<b>PART 3</b>	
<b>Learning Objectives</b>	Create a set of rules for an AI ethics debate
<b>Learning Outcomes</b>	Set up the rules of the debate Set up the debate rubric Think of debate topics
<b>Competences</b>	<ul style="list-style-type: none"> <li>● Actively engaging in communication</li> <li>● Actively engaging in collaboration</li> <li>● Proposing creative solutions to problems</li> <li>● Awareness of machine ethics</li> <li>● Selecting, organizing and sharing of data</li> </ul>
<b>Activities</b>	Create a set of rules for an AI ethics debate

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