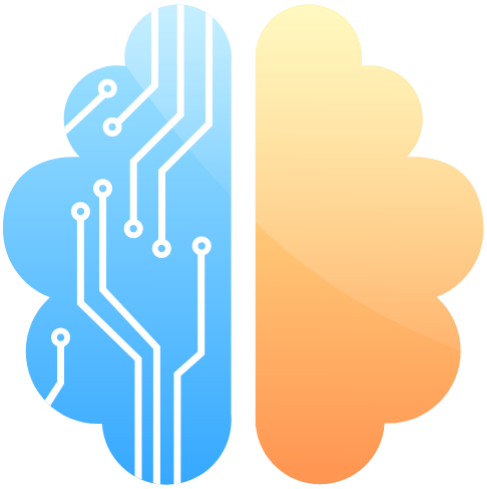

SILVER CODERS

IO2-DEVELOPMENT OF PROGRAMMING SKILLS

Adult Training Syllabus

Document Info	
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Contributors	
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SYLLABUS

General Information
This training has the main aim of giving adults a higher degree of digital literacy and coding abilities.

Competences to be acquired by the participant
- Able to apply the digital literacy skills in everyday tasks - Able to apply the coding skills to develop small apps - Able to inspire others to take advantage of the SILVERCODERS approach

Learning Outcomes (Digital Literacy)
In the end, the learner will be able to: - To articulate information needs, to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies. - To analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. To analyse, interpret and critically evaluate the data, information and digital content. - To organise, store and retrieve data, information and content in digital environments. To organise and process them in a structured environment. - To interact through a variety of digital technologies and to understand appropriate digital communication means for a given context. - To share data, information and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices. - To participate in society through the use of public and private digital services. To seek opportunities for self-empowerment and for participatory citizenship through appropriate digital technologies.

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- To use digital tools and technologies for collaborative processes, and for co-construction and co-creation of resources and knowledge.
- To be aware of behavioural norms and know-how while using digital technologies and interacting in digital environments. To adapt communication strategies to a specific audience and to be aware of cultural and generational diversity in digital environments.
- To create and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools, environments and services.
- To create and edit digital content in different formats, to express oneself through digital means.
- To modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge.
- To understand how copyright and licences apply to data, information and digital content.
- To protect devices and digital content, and to understand risks and threats in digital environments. To know about safety and security measures and to have due regard to reliability and privacy.
- To protect personal data and privacy in digital environments. To understand how to use and share personally identifiable information while being able to protect oneself and others from damages. To understand that digital services use a “Privacy policy” to inform how personal data is used.
- To be able to avoid health-risks and threats to physical and psychological well-being while using digital technologies. To be able to protect oneself and others from possible dangers in digital environments (e.g. cyber bullying). To be aware of digital technologies for social well-being and social inclusion.
- To be aware of the environmental impact of digital technologies and their use.
- To identify technical problems when operating devices and using digital environments, and to solve them (from trouble-shooting to solving more complex problems).
- To assess needs and to identify, evaluate, select and use digital tools and possible technological responses to solve them. To adjust and customise digital environments to personal needs (e.g. accessibility).
- To use digital tools and technologies to create knowledge and to innovate processes and products. To engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments.

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- To understand where one's own digital competence needs to be improved or updated. To be able to support others with their digital competence development. To seek opportunities for self-development and to keep up-to-date with the digital evolution.
Learning Outcomes (Coding and Programming)
- To understand how code is treated by a computer and what is the role of a compiler. - To be familiar with the concept of low and high level languages and understand what their differences are and what is required to code in either of them. - To have experience with a visual programming suite and be able to code standard small piece of software with it. - To have knowledge of the concept of no code programming and understand all the advantages and limitations of such solutions. - To be able to write instructions using correct syntax and with minimal errors. - To know what operators are, what they do and which symbols stand for which operators. - To understand the concepts of inputs and how they can modify what a program is going to output. - To understand the importance of commenting code, to have the knowledge of writing comments and the discipline to do it often. - To be able to understand the assignment of values to variables and how to change them. - To know how and when to use constants instead of variables. - To be able to identify and recognize reserved words in different programming languages and know how to use them. - To know all the basic arithmetic operations and how to use them. - To be able to integrate random numbers into code and to understand what the limitations of pseudo-randomness are. - Recognize and know how to use all the data structures related to numbers. Being able to know the differences between them and why some are more adapted than others in certain situations. - To know the structures linked to the use of text, such as strings and characters. To be able to use special characters and be aware of the issues with non latin characters. - To be able to use arrays in order to store collections of numbers and to know special operations that can be used on them. - To be able to operate with media (audio, video, images, etc.) structures.

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- To know and understand how to use functions to organize the code and avoid code repetition and improve reusability
- To be able to use If and Switch statements correctly to execute code according to a certain defined fixed condition. To be able to write imbricated conditionals in order to treat complex issues.
- To know how to use loops to treat a certain situation many times. Being able to write correct conditions for starting and stopping loops and avoid infinite loops.
- To know and understand the programming paradigm based on the concepts of objects containing data and code.
- To know sets of tools which can be useful in order to help remove the bugs of a certain piece of code.
- To be able to debug code written by someone else and to be familiar with common errors and mistakes in code writing.

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STRUCTURE (RECOMMENDED)

Duration: 2 to 8 weeks	
Classroom sessions for presentation of the project concept and tools and conduct 1 or 2 challenges	1 or 2 (2 to 4 hours) classes per week
Autonomous exploration of the challenges by the trainees	1 or 2 challenges per week (2 to 4 hours)
Debriefing and evaluation session (optional)	2 hours

Agenda (session 1)	
15 mins	Welcome, presentations and introduction to the SILVERCODERS project.
15 mins	Concepts and ideas related to digital literacy European Frameworks for Digital Competence and Digital Competence for Educators (DigCompEdu)
	Coffee break
1:30 hours	One to two challenges depending on the level of the trainees. Suggested challenges: 1, 2

Agenda (session 2 to n/2)	
30 mins	Concepts and ideas related to digital literacy
	Coffee break
1:30 hours	One to two challenges depending on the level of the trainees. Suggested challenges: 1, 2

Agenda (session n/2+1)	
20 mins	Introduction to coding and programming
20 mins	Introduction to GDevelop
	Coffee break

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1:20 hours	One programming challenge. Suggested challenges: 17

Agenda (session n/2+1 to n-1)	
30 mins	Concepts and ideas related to coding and programming
	Coffee break
1:30 hours	One programming challenge.

Agenda (session n)	
10 mins	Welcome, quick feedback from trainees
20 mins	Digital literacy challenge selected by trainees
	Coffee break
1 hour	Coding challenge selected by trainees
30 mins	Validation focus group

Agenda (session	**Agenda (session 2 to n/2)**	
30 mins	30 mins	Concepts and ideas related to digital literacy
		Coffee break
1:30 hours	1:30 hours	One to two challenges depending on the level of the tr challenges: 1, 2

Agenda (session	**Agenda (session n/2+1)**	
20 mins	20 mins	Introduction to coding and programming
20 mins	20 mins	Introduction to GDevelop
		Coffee break

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1:20 hours	1:20 hours	One programming challenge. Suggested challenges: 17

Agenda (session	**Agenda (session n/2+1 to n-1)**	
30 mins	30 mins	Concepts and ideas related to coding and programming
		Coffee break
1:30 hours	1:30 hours	One programming challenge.

Agenda (session	**Agenda (session n)**	
10 mins	10 mins	Welcome, quick feedback from trainees
20 mins	20 mins	Digital literacy challenge selected by trainees
		Coffee break
1 hour	1 hour	Coding challenge selected by trainees
30 mins	30 mins	Validation focus group

Agenda (session	**Agenda (session 2 to n/2)**	
30 mins	30 mins	Concepts and ideas related to digital literacy
		Coffee break
1:30 hours	1:30 hours	One to two challenges depending on the level of the tr challenges: 1, 2

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20 mins	20 mins	Introduction to coding and programming
20 mins	20 mins	Introduction to GDevelop
		Coffee break

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1:20 hours	1:20 hours	One programming challenge. Suggested challenges: 17

Agenda (session	**Agenda (session n/2+1 to n-1)**	
30 mins	30 mins	Concepts and ideas related to coding and programming
		Coffee break
1:30 hours	1:30 hours	One programming challenge.

Agenda (session	**Agenda (session n)**	
10 mins	10 mins	Welcome, quick feedback from trainees
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20 mins	20 mins	Introduction to GDevelop
		Coffee break

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1:20 hours	1:20 hours	One programming challenge. Suggested challenge: 17

Agenda (session	**Agenda (session n/2+1 to n-1)**	
30 mins	30 mins	Concepts and ideas related to coding and programming
		Coffee break
1:30 hours	1:30 hours	One programming challenge.

Agenda (session	**Agenda (session n)**	
10 mins	10 mins	Welcome, quick feedback from trainees
20 mins	20 mins	Digital literacy challenge selected by trainees
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30 mins	30 mins	Validation focus group

Agenda (session 2 to n/2)	
30 mins	Concepts and ideas related to digital literacy
	Coffee break
1:30 hours	One to two challenges depending on the level of the trainees. Suggested challenges: 1, 2

Agenda (session n/2+1)	
20 mins	Introduction to coding and programming
20 mins	Introduction to GDevelop
	Coffee break

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1:20 hours	One programming challenge. Suggested challenges: 17

Agenda (session n/2+1 to n-1)	
30 mins	Concepts and ideas related to coding and programming
	Coffee break
1:30 hours	One programming challenge.

Agenda (session n)	
10 mins	Welcome, quick feedback from trainees
20 mins	Digital literacy challenge selected by trainees

	Coffee break

1 hour	Coding challenge selected by trainees
30 mins	Validation focus group

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