SparkDigiGirls

EMPOWER GIRLS CREATIVITY THROUGH USE OF DIGITAL TECHNOLOGIES

CURRICULUM FOR THE PROGRAMME

UNLEASH YOUR CREATIVITY WITH TECHNOLOGY

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1. Introduction

Women in technology, today, are still a minority, even though their contributions throughout the history of computerized technological development are not to be understated. Looking at today's concrete statistics, according to the 2018 Women in Tech Index, which covers European Union (EU) and the Organization for Economic Co-operation and Development (OECD) countries, gender disparity is indeed a prevalent factor in the technology sector. Among the four countries of focus, Lithuania had the highest rate of women in ICT - 24,93%. Slovenia and Portugal displayed, respectively, 17,49% and 16,08%, with Greece being the lowest, with 12,70%. According to the 2018 data of Eurostat, girls and women continue to be under-represented, being only 17% of all ICT students in the EU. This disparity remains in place despite an increasing social climate that, supposedly, encourages women not to embrace stereotypes in career choices. Female interest in STEM subjects drops far too early, and evidently by influence of broader social factors, which ought to be understood and tackled.

SparkDigiGirls project endeavor to meet girl's needs by improving / increasing their creative use of innovative applications and digital tools. It is an online program, focusing on a practical experiential learning model and real-life tasks that could allow girls to explore technologies and come up with exciting ideas and solutions for given problems. Girls become more interested in ICT once they're able to conceive what they can do with these subjects, how they can be applied to real-life situations and how relevant they might be to their future. The main reason why girls quit from ICT halfway through when they find that they do not see the practical benefits. Therefore, it is important to teach girls not only to play, but also to use technology in a meaningful way, whether exploring or creating.

Within the SparkDigiGirls Project, the Curriculum sets the framework for planning the learning outcomes, as an important part of the curriculum. The initial aim of the Curriculum is to list meaningful activities that can engage girls in STEAM subjects. By challenging girls to do activities that may respond to personal interests, such as design or fashion, we believe we will stimulate their interest in the field of technology.

As a result of this output, it is expected that the curriculum will attract more attention of girls to be engaged in the online course and will serve as a support document on how they could navigate independently through online training materials. The programme topics were chosen based on real life problems/situations important to the girls and selected digital applications will suggest a solution to the problem solving. It is also believed that youth workers from formal and non-formal education organisations could use curriculum for dissemination purposes to attract girls to use online course; plus, by using curriculum youth workers will be more confident in consulting girls.

2. Target Groups

This module is aimed to teenage girls aged 15 to 18 at the following target groups:

- primary target group - girls, which would like to use training material independently and involve in finding solutions of real-world problems by applying acquired digital skills.
- secondary target group - youth workers from formal and non-formal education institutions such as schools, libraries, NGOs, community, youth centres who are providers and organise training for girls and young women.

3. Learning outcome

3.1. Methodological Guidelines

No.	Topics of Challenges:	Technologies Used:
#1	Design	3D Design&Printing; Artificial Intelligence (AI)
#2	Fashion	Programming; Augmented Reality (AR)
#3	Design	Augmented Reality (AR); 3D modelling; Internet of Things (IoT)
#4	Digital Marketing	Cloud Computing; Augmented Reality (AR)
#5	Culinary	Artificial Intelligence (AI); Augmented Reality (AR)
#6	Entertainment	Programming
#7	Virtual Art	Blockchain; Cloud Computing
#8	Data Visualization	Cloud Computing
#9	Buying and selling	Augmented Reality (AR); Artificial Intelligence (AI)
#10	Self-branding	Cloud Computing; Artificial Intelligence (AI)
#11	Games	Artificial intelligence (AI); Programming.
#12	Safe use of technologies	3D design + Printing; Augmented Reality (AR)
#13	Green Europe	Blockchain; Artificial Intelligence (AI); Internet of Things (IoT).
#14	Cybersecurity	3D design + Printing; Augmented Reality
#15	Virtual Art	Cloud Computing
#16	Robots	Robotics

2. Overview of Curriculum

No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Implementation time	Required tools for activity	Partner
#1	Design	Birthday present in 3D	There is less than one week left until your friend's birthday! Amazon and other e-shops will not ship you present on time and you anyway have no money left in your pocket for the present. Well you made and excellent choice and came to the right place for a help. It might seem cheap to give someone 3D printed gift but if you put personal effort into something meaningful gift is much better idea than throwing money into something your friend did not want.	3D design&printing ; Artificial Intelligence (AI).	▪ Know how to create/find ideas. ▪ Understand basics of 3D printing and its process. ▪ Demonstrate knowledge of how to create three-dimensional forms by using 3D modelling program Fusion360 in practice. ▪ Understand basics of AI and its application. ▪ To learn how to use AI tool Aiva in practice.	5 hours	Computer, AI Internet tools, 3D modelling program, email	RIAP

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No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Implementation time	Required tools for activity	Partner
#2	Fashion	Being your own designer	You're interested in fashion and the fashion world, and you're always interested in new collections, different styles, patterns and cuts. You decide to be your own designer and create your own clothes.	Programming; Augmented Reality (AR)	▪ Know where and how to find and create ideas. ▪ Understand basics of programming and its process. ▪ Be able to create a designer game by using block programming program Scratch in practice. ▪ Understand basics of Augmented Reality and how to use AR based tool SketchAR in practice.	5 hours	Computer, AR program SketchAR, Programming program Scratch, email	RIAP
#3	Design	My awesome digi room!	Have you outgrown the pink wallpaper with butterflies and daisies? Is your princess canopy bed too small? Moreover, does your room simply no longer reflect your personal style? If you have answered yes to all these questions, then it's definitely time for a change!	Augmented Reality (AR); 3D modelling; Internet of Things (IoT)	▪ Learn the basics of 3D software for home decoration. ▪ Be able to create a room with 3D decorator room toll Live Home 3D. ▪ Learn how to use Augmented Reality software and learn how to draw with AR tool SketchAR.	4 hours	Computer, AR software SketchAR, 3D modelling tool Live Home 3D, email	Simbioza

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No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Implementation time	Required tools for activity	Partner
#4	Digital Marketing	Business card with AR	You want to create nice flyer by using online tool in order to demonstrate your skills of 3D printing and augmented reality. You do not have too much knowledge about designing therefore you called to you mentor. She advice to choose platform providing templates for free and develop flyer for social media. This platform provides not only templates, but also fonts, designs, colours and etc.	Cloud Computing; Augmented Reality (AR)	▪ Understand the basics of using Canva. ▪ Be able to create business card with Canva. ▪ Understand the basics of Augmented Reality and how it works. ▪ Be able to enhance your business card with some AR effects by using Assemblr EDU app.	5 hours	Computer, AR software Assemblr EDU and Canva.	ITI
#5	Culinary	Pinch of food creations	Do you love trying new food or even more you like cooking yourself? You take photos of what you have tried or cooked yourself but hundreds of them are folded on your smartphone or computer and nobody sees your food creations. So if you find yourself comfortable experimenting in the kitchen this project idea is certainly for you! Why have not you try an idea to create a space - website - on the Internet to share all food creations, recipies, photos you keep in your private folders.	Cloud Computing; Artificial Intelligence (AI).	• Understand basics of cloud computing and its process; • Be able to create and design a webpage by using web-page creation program WIX in practice; • Understand basics of Artificial Intelligence and how to use AI based tool Deep Dream Generator in practice.	5 hours	Computer, AI software Deep Generator, Wix, email.	RIAP

No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Implementation time	Required tools for activity	Partner
#6	Entertainment	Tic-tac-toe	Did you know that your age young people used to spent up to three hours a day in front of screen back in 1995? Now guess how many hours as average youth spend time in front of computers, smartphone, tablets and other gadgets today in XXI century? Up to four hours? Five? Or maybe ten? Try to count your time spent at different screens? The answer is: your age teenagers spend around 6 hours on screens a day which is a quarter of the day! Probably, lots of time playing with smartphones is just out of boredom. Therefore, would like to invite you to perform the challenge and create a meaningful game for your smartphone!	Programming	• Understand basics of programming and its process; • Be able to create and design an app by using app creation program MIT app inventor in practice; • Understand basics of Artificial Intelligence; • Be able to AI based tool for music creation in practice.	4 hours	Computer, Smartphone, email.	RIAP

No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Implementation time	Required tools for activity	Partner
#7	Virtual Art	Futuristic artists	You are unique and so is your art! We all use social media and like to present our talent, but we also run the risk of someone appropriating our art. How can we prove that the work is really ours? NFT (Non-Fungible Tokens) are a recent technology based on blockchain that can be used to establish the authenticity of digital artworks. The Non-Fungible token represents something specific and individual and cannot be replaced, so it's perfect to provide you with a safe way to protect your masterpiece. In this challenge, you will create a gallery to exhibit your digital art with the potential of selling it.	Blockchain; Cloud Computing	• Understand blockchain technology; • Understand NFT and what is its purpose; • Create a digital wallet; • Create an NFT Portfolio; • Placing digital artworks on the marketplace.	3 hours	Computer, Smartphone, cloud software.	IPT

No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Implementation time	Required tools for activity	Partner
#8	Data Visualization	My virtual data-driven stories	We bet you are a social media flower, having friends on a different social media from all over the world, don't you? With some of them you interact on daily basis, with some you just keep in touch, but with most of them you actually don't interact at all – but they are still your virtual friends. Right?	Cloud Computing.	• Learn the basics of cloud computing and data; • Learn how to use Google Sheets to create a simple dataset to be used for further data visualization in order to create your amazing data- driven stories; • Have fun by using the online data visualization tool Datawrapper - and see how boring data comes alive and becomes interactive; • Be able to translate data into a visual form, making it easier to understand the data.	4 hours	Google Sheets, email, online tool Datawrapper.	Simbioza

No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Implementation time	Required tools for activity	Partner
#9	Buying and selling	My digi "arty" business	Are you an artistic soul? But your amazing art collection, hasn't seen the world outside your room yet, even though everyone who has seen it, was impressed by your creations. Isn't that a pity? Don't you think it's about time you presented your art to the world? And guess what, this has never been easier. By using innovative and cool tools on the Internet, you can display your beautiful art for the whole world to see, you can transform your physical art to digital art, but wait… here comes the best part… you can even sell your art online, with basically minimum effort!	Augmented Reality (AR); Artificial Intelligence (AI).	▪ Know where and how to find and create ideas. ▪ Learn the basics of onliine marketplace that connects sellers with byers and get to know the Gumroad marketplace to start displaying and selling art/producs online. ▪ Learn how to digitize art by using Augmented Reality platform Artivive. ▪ To learn to use AI tool HitPaw.	5 hours	Computer, AR software Artivive, AI tool HitPaw and Gumroad tool	Simbioza

No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Implementation time	Required tools for activity	Partner
#10	Self-branding	Rock your career	There's that talent contest you love so much! Applications close in a few days. This is a great opportunity and the prizes are so good! You love playing and singing! But performing in front of someone makes you sweat and your legs start to shake. How to put on a show without feeling exposed and stressed? Let's shine through a character and get your music career to rock!	Cloud Computing; Artificial Intelligence (AI).	▪ Use your talent and creativity without feeling you overexpose yourself. ▪ Understand the basics of Artificial Intelligence and virtual reality; ▪ Understand the basics of Cloud Computing and CNC Printing; ▪ Be able to build your brand logo, to rock your career; ▪ Understand the production process of some merchandising goods	5 hours	Computer, AI, Cloud software.	IPT

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No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Implementation time	Required tools for activity	Partner
#11	Games	Bullying is not just a game!	You know how school can be a very tough place. Groups, image pressure, obeying leaders or social rules, sometimes there's really no way to fit in. In this power struggle there are so many injustices and bullying can be a really serious problem. Create a story about bullying, you should apply a message with a lesson to be learned. The action takes place inside a game, but you have the power to educate and teach! Throughout literature or movies, fictional writing has served not only to entertain but also to instruct, inform or make us think and reflect. In this story you create a scenario to fight against bullying. Why does someone need to demean another? ♠ In this game you have the power to do good! ♠ Also you can programme without difficult coding lines.	Programming; Cloud Computing.	- Use critical thinking for challenges within the Scratch program - Use Scratch comfortably for fun or for other school projects - Synthesize characters' voices and actions (programming) - Strengthen literacy and direction-following skills - Reflect on important topics to help prevent bullying - Programming with different code commands - Understand about Programming with coding instructions through low code You will be able to understand the coding process.	5 hours	Computer, Scratch programme.	IPT

No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Imple mentat ion time	Required tools for activity	Partner
#12	Safe use of technolo gies	Safe usage of technologi es; 3D models and AR	You found nice free 3D models online and want to modify it a little bit according your needs. But don't know how to do it. Plus, you don't know if it is safe or legal to download online content.Also you decided to use modified 3D model in Augmented Reality app and share it with your friends for fun. But it is difficult to decide witch app to use, is it safe to use it? In this challenge you will find out how to be safe online, download legal content, install apps safely, where to download apps from, how to give permissions for apps, and etc.	3D design + Printing; Augmented Reality	▪ How to browse safely on the Internet and find legal 3D models ▪ How to use online 3D models environment (Vectary) and create new model by using downloaded 3D model ▪ How to create and use Augmented Reality (Metaverse) ▪ How to install apps safely ▪ How to share the content with others	5 hours	Computer, 3D modelling programs Vectary and Metaverse.	ITI

No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Implementation time	Required tools for activity	Partner
#13	Green Europe	Small changes with big impact	Youˊre a regular girl that goes to school, consumes products, and makes choices every day… The main challenge is to apply the actions in real life and also influence people around you with small, more sustainable gestures. The world is in countdown and you know climate change is real. The action takes place in your daily life. Youˊll be able to monitor all your actions and see if it produces a positive or negative impact for the planet. With this activity, you decide to continue your lifestyle or starting making more sustainable decisions.	Blockchain; Artificial Intelligence (AI); Internet of Things (IoT).	▪ Use Apps or IoT devices to monitor your daily activities ▪ Use collected data from Apps/IoT to have decision-making intelligence on daily life. ▪ Use knowledge to educate yourself and others. ▪ Develop ability to use applications, extract data and use Cloud Computing. ▪ You will You will be able to operate new equipment and develop your manual skills ▪ Understand about the operation of robots and their programming software ▪ Understand how technology can give you valuable insights into human behaviour.	5 hours	Smartphone, Wearables, Apps and Cloud Computing	IPT

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#14	Cybersecurity	Don't get hooked on the Internet	You've probably heard many stories about money being swindled or personal data being stolen, such as email, passwords, usernames, etc. One of the ways these attacks work is through scammers sending emails, SMS and social media messages. These messages usually ask for personal details, ask to click a link to solve the problem, such as "blocked account", "good offer", or ask to open a document attached to the message, simulating the situation. Just as we learn to cross the road safely, internet users need to know certain things to help them protect themselves from scammers and to identify fraudulent messages. In this activity you will learn the basic signs and examples of several scam messages. Finally, you will be able to check for yourself whether a situation is a scam.		• Learn about phishing cases • On combination of techniques (email and websites) • Understand the risks of submitting data during registration • Learn how to recognise fraud	4 hours	Computer, AR, 3D design software.	ITI

No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Implementation time	Required tools for activity	Partner
#15	Virtual Art	Cloud in the organization of a bazaar	The school is a creative space that encourages initiative. As a cultured personality, you consider the pursuit of art is a key element of a civilized human being. Unfortunately, not all people have the talent to create works of art by hand. The problem can be solved through technology. In this way the engagement with art and technological literacy is achieved. The exhibition of these works in a bazaar and / or for the decoration of the school contributes to the diffusion of this idea.	Cloud Computing	• Know where and how to find and create ideas; • Understand basics of cloud and its process; • Be able to use the cloud to organize the bazzar process • Understand basics of Cloud and how to use cloud based tools in practice	5 hours	Computer.	HOU

No.	Topic	Challenge Title	Description of scenario	Use of digital technologies	Learning outcomes	Implementation time	Required tools for activity	Partner
#16	Robots	Go SMART: Create a robot to help you	While a human be able to do a piece of work at some speed we can definitely design a robot to do the same piece of work better, faster, economical and environmentally friendly. Because of its long run it can free humans from dangerous, repetitive and annoying jobs.	Robotics	• Be creative and have a robot at your services!!! • Learn about microcontrollers and Arduino • Understand how robotics are made by using different parts • Be able to utilize various sensors, boards and electric circuits • Learn how to rite code to make a robot complete various functions • Learn how to automate various works by using robotic assemblies	5 hours	Computer, Arduino	HOU