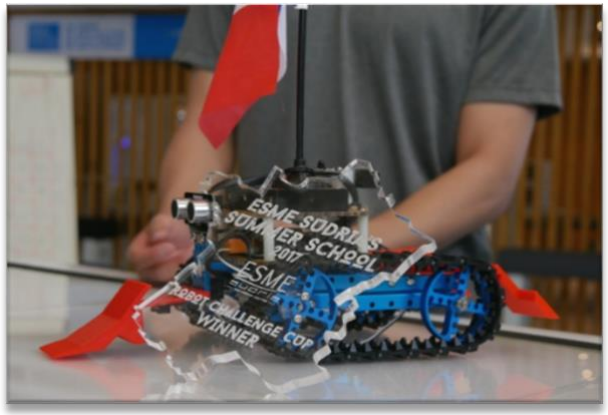
INNOVATIVE ENGINEERING

EPITECH.
THE FUTURE OF SOFTWARE
THE BEST OF INNOVATION

SUMMER SCHOOL 2022

MAKERS IN PARIS!



http://summer-schools.fr/esme/index.html

1. PRESENTATION

Created in 1905, **ESME** is recognized as an highly innovative engineering school through its educational programs, teaching and learning methods and technological tools: since 2013, Fab Labs - named “e-Smart LABs”- have been established on every ESME campus. The ESME E-smart labs’ network is present all over France (Paris, Lille, Lyon and Bordeaux) and aims to encourage formal and informal education in order to get students involved more actively in their learning process.

With 20 campuses around the world, **EPITECH**, pioneer in the implementation of the project-based learning approach, trains students to be experts in IT, recognized by all IT companies. Thanks to an innovative and active pedagogy, EPITECH designs highly technical graduates, adaptable to any environment, international or national.

This year, **ESME** & **EPITECH** have combined their strengths to offer a brand-new program in **CREATIVE CODE & ROBOTICS**.

BECOME A MAKER: BUILD YOUR ROBOT AND BRING IT HOME!

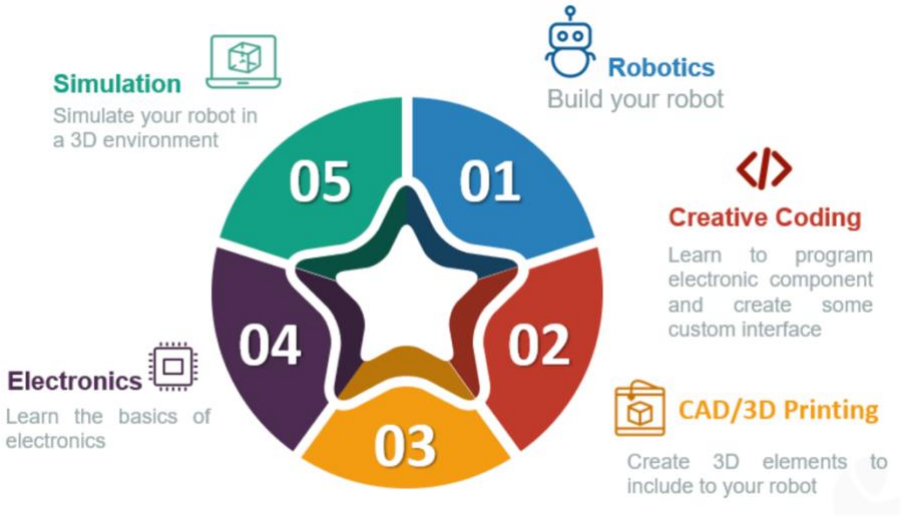
Our Summer School has been designed for you to take part in the “**Maker Movement**”. You will learn about **Creative Code** & **Robotics** as well as CAD, Generative & Interactive Design and Digital Manufacturing in a fun and informal way.

Our program encompasses intensive courses and practical workshops led by our experts as well as **Survival French** and **Inter-culture Workshops**. You will also explore **Paris**, platforms for innovation and new technologies, and meet with the French Makers Community!

During three weeks, you will study and work with your teammates in a creative and inspiring environment, having free access to our **cutting-edge fabrication technologies** (3D Printers, Laser Cutters, Digital Pen Plotter, etc.).

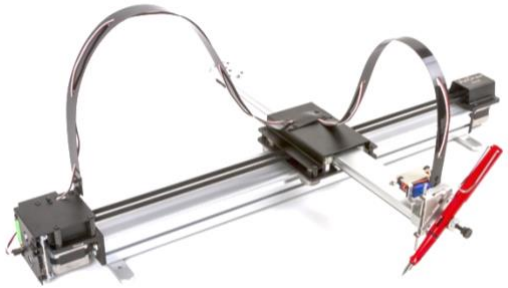
At the end of this program, you will be able to **assemble, program and hack your own robot** and use it within your own **interactive video installation**.

- BE READY TO CHALLENGE YOURSELF! –



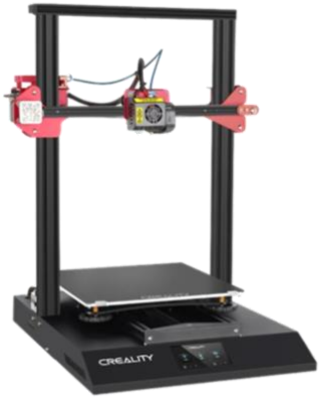
2. OBJECTIVES

EXPERIMENTS & LEARNING OUTCOMES		
Technical Skills	ROBOTICS, CREATIVE CODING, DESIGN, CAD / 3D PRINTING, ELECTRONICS, DIGITAL ARTS	• Ability to use a set of digital tools and methods to build a product • Ability to solve problems independently (DIY) and as a team (DIWO) • Ability to coordinate multiple, interdisciplinary tasks in order to achieve a goal • Ability to apply newly learned information to define, design and lead a project • Ability to drive a project and to meet deadlines
Soft Skills	DESIGN THINKING, CO-WORKING, TROUBLESHOOTING, PROJECT MANAGEMENT	



AxiDraw - V3/A3

Pen Plotter / Drawing Machine



Creality - CR10S PRO

3D Printers

Thermoflan - V2000

Laser Cutting & Engraving Machine

3. CONTENT

You will discover the basics of **Creative Code** & **Robotics** in order to build and customize your robot, as well as creating an interactive video-mapping installation with them! Each week, you will discover a new CNC machine and put your newly acquired skills into practice.

You will also benefit from **Survival French** lessons, and the **Pop Inter-culture Workshop**, an 8-hour workshop through which Intercultural Exchanges and Geopolitics will be seen, debated, and acted on through the lens of pop culture phenomena such as Star Wars and Game of Thrones.

WEEK #1: CREATIVE CODING

During the first week, you will discover the general principles of Creative Coding, followed by two days on Generative and Interactive Design. You will have your first CNC initiation: **Drawing Machine** and learn how to integrate Computer Vision into your projects.
This week will end with your **First Creative Challenge**: you will use the skills acquired on Generative and Interactive Design to draw a sketch with your Digital Pen Plotter or create interactive pieces. The greatest sketch / interactive piece will win the challenge.

Tools:

- **Processing** and **ReactiVision**.
- **Drawing Machine** (Axidraw A3/V3)

Sessions
1. Presentation & Discussions about the project
2. Introduction to Creative Coding
3. Generative Design
4. Interactive Design
5. First Creative Challenge
Survival French & Pop Inter-Culture Workshops

WEEK #2: ROBOTICS & ELECTRONICS

During the second week, you will assemble and learn how to program your robot. You will try to design the best solutions for the final robotic challenge. For the **Second Creative Challenge**, you will design your own 3D parts and hack your robot.

Tools:

- **Arduino** and **Electronics**
- **Fusion 360**, **3D Printers** (Creality CR-10S PRO, Alfawise U20)

Sessions
6. Robot Assembly & Discovery
7. Electronics & Programming
8. CAD
9. 3D Printing
10. Second Creative Challenge
Survival French & Pop Inter-Culture Workshops

WEEK #3: FINAL CHALLENGE

Digital Manufacturing → programming → DIGITAL ArT → video-Mapping → Final Creative Challenge

During the last week, you will learn the basics of video-projection mapping to create an interactive installation that track and display animations around your robots. Depending on the time left for the final challenge, you will use the Laser Machine to customize your robot. Last but not least, you will prepare for the three different parts of the **Final Creative Challenge**:

1) **PRESENTATION OF EACH ROBOT IN FRENCH**
2) **INTERACTIVE DESIGN CHALLENGE**
3) **ROBOT CHALLENGE**

Tools:

- **Laser Cutting & Engraving Machine** (Thermoflan V2000)
- **Video Projectors** (Acer H6517ABD)

Sessions
11. Video-Projection Mapping
12. Laser Cutting / Engraving Initiation
13. Final Challenge Preparation
14. Final Challenge Tests
15. Final Challenge
Survival French & Pop Inter-Culture Workshops

4. CONTACTS

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