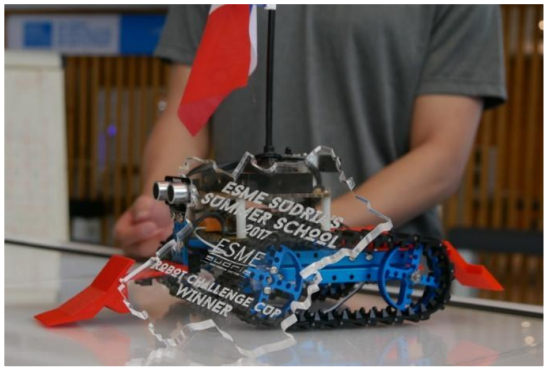
ESME INNOVATIVE ENGINEERING

EPITECH. THE FUTURE OF SOFTWARE THE BEST OF INNOVATION

SUMMER SCHOOL 2022

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

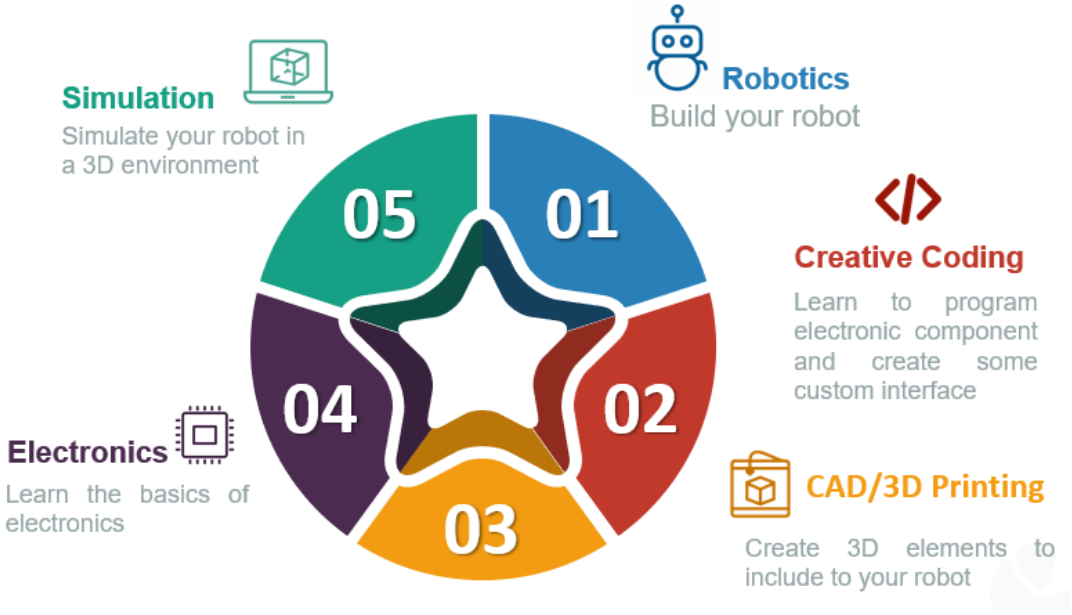


1. Presentation

ESME and EPITECH designed the 2022 Summer School. Both schools combined their strengths to offer a brand-new program in Robotics with lots of projects for students and aspiring engineers to work on this summer.

ESME is recognized as a 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 hybrid education to get students actively involved in their learning process.

EPITECH, pioneer in the implementation of project-based learning approaches, trains students to become experts in IT, recognized by IT companies over the globe. Thanks to an innovative and active pedagogy, EPITECH prepares and train graduates to become technical engineers of today, adaptable to any environment, on both international and national scope. With 20 campuses around the world, EPITECH Innovation Hub, helps students to build their own innovative project in IT.



BUILD YOUR OWN ROBOT AND BRING IT HOME!

Our Summer School has been designed for you to take part in the “Maker Movement”. You will learn about Electronics, Robotics, Creative Coding, Computer-Aided Design “CAD”, Digital Manufacturing in a fun and intuitive way.

Our program encompasses intensive courses and practical workshops led by our experts, platforms for innovation and new technologies, as well as survival French and inter-cultural workshops. You will also discover Paris and meet with the French Makers Community!

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

At the end of this course, you will be able to program, assemble and design your own robot. Be ready to challenge yourself!

AxiDraw V3/A3

Drawing Machine

Alfawise U20 / U30

3D Printers

V2000

Laser Cutting & Engraving Machine

2. Objectives

Experiments & learning skills		
Technical skills	ROBOTICS, CODING, DESIGN, CAD / 3D PRINTING, ELECTRONICS, DIGITAL ARTS	• Expertise in using a set of digital tools and methods to build a product. • Mastery in solving problems independently (DIY) and with a team (DIWO). • Ability to coordinate multiple, interdisciplinary tasks in order to achieve a project. • Proficiency in applying newly learned information to define, design and lead a project. • Preparedness to work on a project and to meet deadlines.
Soft skills	DESIGN THINKING, CO-WORKING, TROUBLESHOOTING, PROJECT MANAGEMENT	

3. Content

You will discover the basics of Creative Coding, Electronics and work on subjects such as Generative Design and CAD.

You will also benefit from **survival French** lessons, and intercultural **workshops**, with Intercultural Exchanges and debates on various subjects!

WEEK 1 - ELECTRONICS & CODE:

Introduction to Electronics > Code (Processing)

During the first week, you will be introduced to electronics followed by the general principles of Coding.

You will have your first CNC initiation: **Drawing Machine**.

This week will end with your **First Creative Challenge**: you will use the skills acquired on Generative Design to draw a sketch with your Digital Pen Plotter, and contest for the greatest sketch, to win the challenge.

SURPRISE GUEST 1

TOOLS:

- **Processing, Electronics Components**.
- **Drawing Machine** (AxiDraw A3/V3)

WEEK 2 – ROBOTICS & SIMULATION:

Assembly & Simulation of the robot > 3D Modelisation (CAD)

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 also meet the robot creators and they will help you design your own 3D parts and hack your robot.

SURPRISE GUEST 2

TOOLS:

- **Arduino** and Electronics
- **Fusion360**, **3D Printers** (Alfawise U20, U30)

SESSIONS
6. Robot Assembly & Discovery
7. Electronics & Programming
8. CAD
9. 3D Printing *
10. Second Creative Challenge
Survival French
Pop Inter-culture Workshop

WEEK 3 – FINAL CHALLENGE:

Time to Hack your Robot! Be creative :)

During the last week, you will customize and program your robot for the final challenge. Finally, you will prepare for the two different parts of the Final Creative Challenge:

1) Presentation of each robot in French
2) Robot Challenge

SURPRISE GUEST 3

TOOLS:

- **Laser Cutting & Engraving Machine** (Thermoflan V2000)

SESSIONS
12. Laser Cutting / Engraving Initiation*
13. Final Challenge Preparation
14. Final Challenge Tests
15. Final Challenge
Survival French
Pop Inter-culture Workshop(s)

CONTACTS

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