

# 3D Concrete Printing

## Erasmus+ Blended Intensive Program

Paris & Orléans, France  
3 - 14 June, 2024

Take part in a short theoretical and practical training around 3D printing from architecture to printing.

Learn about the benefits and impact of the 3D printing on the environment, by reducing the quantity of materials printed, using low-carbon inks and producing special designs

Earn 3 ECTS

Experience exciting social events and cultural in vibrant cities of Paris and Orléans

Attend virtual lectures and work in teams on projects





## Tentative program

*may be subject to changes*

**Virtual part of the program includes the following activities:**

Activity	Format	Support
Introduction: kick-off, presentation of the course plan and concepts	Online meeting	MS Teams
Introduction to 3D printing, software presentation	Self-study course	e-campus platform
How to use the software, modeling (testing printability and stability), individual work, work with an example of design for printing	Online Lecture	MS Teams

*Date and time of the virtual part will be announced soon.*

**Face-to-face part of the program includes the following activities:**

**[WEEK 1 ] 3 - 9 June, 2024**

Date	Location	Morning activity	Afternoon activity
<b>Monday 03/06</b>	Cachan	Project design 1: Project Brainstorming	Cultural visit / activity
<b>Tuesday 04/06</b>	Cachan	Project Design 2 : design and conception according to subject given / 3D modeling	X-Tree Factory visit
<b>Wednesday 05/06</b>	Cachan	Lecture: Cementitious materials, Practical work: concrete lab, NIST Model	Architectural visit in Paris/ Construction Site Visit
<b>Thursday 06/06</b>	Cachan	Project Design 3 : modelisation and stability / 3D modeling	Concrete plant Visit
<b>Friday 07/06</b>	Cachan	Labwork 1 - Mortars formulations	Cultural visit / activity
<b>Saturday 08/06 &amp; Sunday 09/06</b>	Cachan & Orléans	Social and cultural activities Transfer from Cachan to Orléans	

**[WEEK 2] 10 - 14 June, 2024**

Date	Location	Morning activity	Afternoon activity
<b>Monday 10/06</b>	Orléans	Lecture and Practical work: rheology...	Cultural visit / activity
<b>Tuesday 11/06</b>	Orléans	Lecture and Practical work: robotic, printer installation, experimental protocol	Project Design 4 : Finalisation of the design and modelisation of the object / 3D modeling
<b>Wednesday 12/06</b>	Orléans	Labwork 2 : Printing / preparation of final presentation	Labwork 3 : Printing / preparation of final presentation
<b>Thursday 13/06</b>	Orléans	Labwork 4 : Printing / preparation of final presentation	Labwork 5 : Printing / preparation of final presentation
<b>Friday 14/06</b>	Orléans	Project Final presentation Closing ceremony	Travel back to Paris

**\*\*\* End of the program \*\*\***

## Learning outcomes

At the end of the program, students will be able to:

- Design and print a complex shape
- Formulate and characterize a cementitious ink.
- Formulate and characterize an alternative ink by replacing a percentage of cement with an industrial by-product or an addition and the natural sand by recycled one

## Total Workload

**62 hours** (virtual and face-to-face)



## Who can participate



- Academic: open to Master's students and students in the final year of a Bachelor's degree
- Language : English level B2
- Prior knowledge: strength of materials, physico-chemical analysis methods, characterization of mechanical properties of materials, materials science, modeling, computer science
- Students must come through the Erasmus scheme



## ECTS and Evaluation

Upon completion of the program, students will earn 3 ECTS. The assessment will be based on a final presentation.

## Recognition



A certificate of attendance will be provided to all participants.

A certificate of completion will be provided to successful participants. Recognition and credit transfer to home university will be possible.





## Accommodation



[Week 1 in Cachan]

Studio apartment in a student dorm are available on campus.

[Week 2 in Orléans]

Triple room to share in hostel are available in Orléans' city center

Reservations will be made through ESTP upon confirmation of enrolment.

## Transportation



Participants are responsible for all travel arrangements between their home country and France

Return trip between Paris and Orléans are covered by ESTP.



## Fee

The program is free of charge as it is conducted under the Erasmus+ program.

Students are responsible for their own accommodation, meals and personal expenses. Student expenses may be covered by an Erasmus grant (individual and travel assistance) provided by the home institution.





# 2024 APPLICATIONS NOW OPEN

Application deadline:  
February 16th, 2024



## How to apply

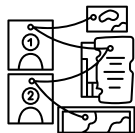
### Step 1

Applicants must provide the following application documents to their Home Institution's Erasmus Office.

- o A CV in English
- o English level certificate (provided by home institution)
- o A copy of the latest transcript of records translated in English
- o A motivation letter stating why you would like to participate in this Erasmus+ BIP (1 A4 page maximum, written in English)
- o A copy of a valid EU ID/Passport

### Step 2

The Erasmus office send us the applications along with a nomination sheet completed with the name and personal details of all applicants.



## Selection and Enrolment

Students will be selected by the BIP's academic coordinators based on the following criteria:

- academic results (transcripts of records)
- suitability of academic background
- motivation
- level of English language proficiency

Students will be notified of the selection results by February 23rd. Selected students will be contacted to start the enrolment process.

## Academic coordinators

- Dr. Céline Florence, Head of Concrete Materials Chair (ESTP)
- Dr. Eliane Houry, Associate Professor in Civil Engineering (ESTP)
- Sibylle Lesay, Head of Building Engineering Department (ESTP)
- Pr Sébastien Rémond, Full Professor (University of Orléans)

## Administrative support

- Sophie-Caroline Huisman, Director of International Relations (ESTP)
- Naoil Bendrimia, International Project Manager, Erasmus Coordinator (ESTP)

For any questions, please contact Ms. Naoil Bendrimia, Erasmus Coordinator:

Email: [nbendrimia@estp.fr](mailto:nbendrimia@estp.fr)

Tel: +33 (0)1 49 08 24 66

