

## Programme Description

### STUDY ABROAD

**Name of the programme:** Year 3 Computational Engineering

**Key information:**

Dates: 7 January to 4 April 2025

Duration: 13 weeks (holidays: 15-23 February)

Level: Level 6 (Undergraduate Year 3)

Total number of teaching hours: 155

ECTS: 26

Prerequisites: Completion of Level 5/Undergraduate Year 2 of Engineering studies

Examination Board Date: 20 May 2025\*

Resit Exams Dates: 16 to 20 June 2025 (online, apart for Statistics & Probability module, which will take place at ECE campuses in France)\*

Resit Examination Board Date: 3 July 2025\*

*\*The forecasted dates of the Examination Boards and the Resit Exams are indicated in your programme description, although they are subject to change based on circumstances*

**Programme Lead Name:** Maithili Paranjape

**Programme Advisor Name, Title and Institution:** Fabienne Coudray, Dean of Undergraduate Programmes, ECE Paris

### **Aims of the Programme:**

- This semester of Year 3 Undergraduate Studies in Engineering focuses on equipping students with a strong foundation in computing subjects such as object-oriented programming and artificial intelligence, along with the mathematical concepts of statistics and probability. The objective is to develop robust problem-solving abilities, high-competency, and a professional approach to software development.
- The programme also aims to enhance employability skills by including the interdisciplinary topics for future managers: management theory and leadership as well as written and oral communication.

### **Programme Benefits:**

This programme offers students:

- A distinctive computer-focused curriculum – students engage in experiential, experimental, and collaborative learning using a variety of computer languages and mathematical tools.
- An applied experience – students work on hands-on real life projects developing all the skills needed in problem solving.
- An introduction to management – students obtain fundamental knowledge and abilities in leadership, finance, and entrepreneurship.
- An enhancement of transferrable skills – students learn and experience a wide range of skills that employers are looking for (teamwork, communication, critical reflexion, intellectual curiosity, and organisation).
- A study abroad experience – students develop their autonomy by living in a foreign country

### **Learning Outcomes:**

#### **Knowledge**

By the end of this programme, students will have demonstrated:

1. In-depth knowledge of Object-Oriented Programming and recent technologies such as AI.
2. Advanced knowledge of statistics and probability.
3. Core understanding of management theory and public speaking aspects.

#### **Skills**

By the end of this programme, students will be able to:

4. Understand progressive computing concepts such as object-oriented programming and artificial intelligence.
5. Apply programming tools for solving a given problem.
6. Demonstrate awareness of emerging technologies in the computing sector.
7. Organise code development to achieve the clarity and transferability of code.
8. Reflect on the interdependence of programming concepts.
9. Evaluate the important factors to consider while speaking in a public domain

#### **Values**

By the end of this programme, students will have demonstrated a commitment to:

10. Establish a methodical approach to application development.
11. Adhere to accuracy, efficiency and reliability while deriving solutions.

**Programme Structure:**

<b>ACADEMIC PROGRAMME</b> <i>(subject to change)</i>	<b>Hours</b>	<b>ECTS</b>
<b>Programming</b>		
OOP Java	48	8
OOP Java Office Hours	4	-
<b>Mathematics</b>		
Statistics & Probability	36	6
Statistics & Probability Support	4	-
<b>Artificial Intelligence</b>		
Artificial Intelligence	36	6
Artificial Intelligence Office Hours	4	-
<b>Management</b>		
Leadership for Effective Management	12	2
<b>Language &amp; Communication</b>		
Advanced Integrated English	12	2
Public Speaking & Key Soft Skills	12	2

**Approach to Learning:**

The teaching contact hours will vary based on the level of study for each module. In a typical week, contact hours will include small to large group teaching and tutorials. The number of contact hours may vary for each module.

In addition to the teaching hours, students are expected to undertake significant self-directed study every week depending on the requirements of each module. Students are expected to read and watch assigned material (text, articles, podcasts, videos...) independently, attend all classes, workshops and activities in their schedule (unless noted "optional"), actively participate in group discussions, and where appropriate, work in collaboration with their peers for formative and summative assessments.

During the term, students will benefit from our application-driven teaching approach with access to recent teaching tools, using learning techniques such as the flipped classroom, where students will prepare in advance by researching a particular topic or challenge.

Students will be assessed via a range of methods depending on the module. The assessment methods include assignments, exams, group discussions, essays, group projects, presentations, simulations, etc.