

# SMART Lyon

2-week Short Program  
30 Contact Hours - 2 Tracks  
2 ECTS

From March 7<sup>th</sup> to March 22<sup>nd</sup> 2024

Track 1

Smart Cities

Track 2

French Language

## LYON – AN ESSENTIAL EUROPEAN CITY

When you choose Lyon, you choose one of the most attractive cities in Europe, an international competitor and a gateway to the rest of the world. Being France's 2<sup>nd</sup> most important city, it is located in the heart of the thriving Auvergne-Rhône-Alpes region. The city was classified as World Heritage Site by UNESCO in 1998. Ancient capital of the Gauls, it testifies of 2000 years of history. Lyon has been recognized as France's 1<sup>st</sup> city for culture outside of Paris and is indeed characterized above all by the balance between its cultural institutions of excellence offering quality programming, its large-scale festivals, and its cultural venues open to all.

With its many fields of excellence, Lyon is a major international hub: Life Sciences, Clean Technologies, ITC, to name a few. The city is also home to internationally-renowned companies and major players, including: Sanofi, Merial, Lafarge, GL Events, Bank of China, Solvay Rhodia. In addition, many world-renowned organizations have chosen Lyon as the location for their headquarters or regional offices: Handicap International, World Health Organization, CIRC (International Cancer Research Center), Interpol, Euronews.

Lyon is also a favorite city for foreign students who represent 10% of the student population in Lyon and strengthen the city's international character.

## INSA LYON – A LEADING ENGINEERING SCHOOL IN FRANCE

INSA Lyon is one of France's leading universities for science and technology. Our five-year program trains multi-skilled, humanist, innovative engineers equipped with an entrepreneurial spirit and a strong international culture.

Diversity, excellence, openness and innovation are the driving forces that lead INSA Lyon students to become responsible engineers. Founded in 1957, INSA Lyon embodies an avant-garde and resolutely modern vision of engineering.

INSA engineers boast excellent scientific and technical expertise, are capable of understanding the issues at the heart of their companies, and actively contribute to the evolution of their world.

On the higher education scene, it ranks among the top 10 engineering schools in Europe. Its purpose is also to become a centre for research and innovation recognized throughout the world, a partner of choice for business and industry.

## SMART Lyon Short Program on Smart Cities

During this 2-week Short Program, students will have

- 18 hours of Smart Cities lectures
- 12 hours of French as a Foreign Language lectures

The program also includes industrial visits as well as cultural and social activities outside of class. Students will be evaluated in both classes and will receive 2 ECTS if they succeed. The SMART Lyon program is open to undergraduate students with an engineering or science background.



# COURSE DESCRIPTIONS

## Courses

### I: SMART CITIES

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Hours and credits: 18 contact-hours - 1 ECTS

Pre-requisites: notion of C or Arduino Programming (preferable, but not mandatory)

Language: English

Academic Coordinator: Hervé Rivano, University Professor at INSA Lyon / Head of the Inria/INSA Lyon common team Agora of the CITI lab – [herve.rivano@insa-lyon.fr](mailto:herve.rivano@insa-lyon.fr)

Oana Iova, Associate Professor at INSA Lyon – [oana.iova@insa-lyon.fr](mailto:oana.iova@insa-lyon.fr)

#### OBJECTIVES AND METHODS

The objectives of the course are to give an overview of technical, societal and ethical issues of Smart Cities with a major focus on connected devices and data processing. Besides, a spatial approach will be presented as well as the complementary between scientific discipline. Half of the course are lectures, one third are hands on sessions where the students are guided step by step toward building their potentially first connected device using LoRaWAN networks and collecting, then processing the data. The remaining are visits of industrial and urban sites that are emblematic of Smart Cities principles and international business.

#### CONTENT

- Introduction to Smart Cities issues
- Technical overview of wireless technologies for Smart Cities
- Hands on laboratory work with Arduino and LoRa technology (2 sessions)
- Geomatics and spatial smartness
- Machine learning in the context of Smart Cities
- Industrial Visits
- Visit of the Confluence district, former industrial district renewed as a very new business district, with modern and environmentally friendly conceptions

#### FINAL EVALUATION

This is an entry-level course. The students will work on a mini-project involving connected devices, monitoring sensors, data collection and processing, which will be the basis of the evaluation.

## II : FRENCH AS A FOREIGN LANGUAGE

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Hours and Credits : 12 contact-hours - 1 ECTS

Prerequisites : none – please specify your level of French when applying

Language : French

Academic Coordinator : Elisabeth Aumeunier, Professor of French for international students at INSA Lyon – Head of the French as a Foreign Language Service – [elisabeth.aumeunier@insa-lyon.fr](mailto:elisabeth.aumeunier@insa-lyon.fr)

### OBJECTIVES AND METHODS

The focus of this unit will be on the oral French used in daily life. Using action-based language teaching methods, this class will require students to use the French they learn in various situations both during in-class activities and in real-life situations on-site in Lyon. The overall goal is to introduce the students to various cultural aspects of life in Lyon.

### FINAL PROJECT

During the final class, the students will go on a shopping trip to Les Halles de Lyon with their teachers, where they will be expected to use the language skills they have acquired in order to find their way from the INSA campus to Les Halles and, once there, to interact appropriately with the vendors in order to greet, explain their needs, taste local products and make their purchases.

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If you have any questions about the SMART Lyon program, please do not hesitate to contact Sophie BAUMANN – Coordinator for the program – [smartlyon@insa-lyon.fr](mailto:smartlyon@insa-lyon.fr)