

# INTERNET OF THINGS AND ARTIFICIAL INTELLIGENCE

## Joint Graduate Study Programme in Computer Science



{ EPITECH. }  
TECHNOLOGY

 ALGEBRA  
UNIVERSITY  
COLLEGE

# WHY STUDY IOT & AI?

The horizontal nature of digital technologies opens up huge potentials on the global labour market. The demand for IoT and AI experts is already big and growing each day - governments are asking for proven solutions, while the industry is looking for profitable ones. This is why we designed a study program that provides you with project-based learning and real experience right from the start of your graduate journey.

The joint graduate study programme in Computer Science – Internet of Things and Artificial Intelligence has been developed by Algebra University College and EPITECH from France. You will spend your first year studying at Algebra in Zagreb, the second year at EPITECH in Paris, and you will receive degrees from both institutions. Our goal is to provide you with the best from both institutions and prepare you to become industry professionals equipped for roles that require state-of-the-art IoT and AI knowledge and practical skills.

**STUDY PROGRAM DURATION:**  
4 semesters (2 years)

**SEMESTER DURATION:**  
15 weeks of active teaching  
+ 5 examination weeks

**TOTAL NUMBER OF ECTS POINTS:**  
120

This program is designed for students who wish to work with advanced technological systems related to internet of things and artificial intelligence, such as home automation, environment, healthcare, smart city, smart agriculture, data-empowered products and services, AI-enabled assistant services and similar.

The prerequisite for enrolment is a bachelor's degree in computer science and/or system engineering and an intermediate level of English, as well as a strong proficiency in programming, knowledge of object-oriented programming and basic knowledge of design patterns.

# WHAT ARE THE TAKEAWAYS FROM THIS STUDY PROGRAM?

Over the course of your study, you will build skills required for understanding IoT and AI, including data science and full-stack IoT developer roles, from the design and implementation of smart solutions to data analytics and hardware management, as well as communication protocols, cloud-based backend APIs and data/big data storages. You will also acquire broader critical thinking and entrepreneurial skills contextualized to IoT and AI applications.

Our aim is for you to become a professional with highly developed problem-solving skills applicable in the AI and IoT ecosystems. Within this joint study programme, special emphasis is placed on acquiring excellent teamwork skills and learning about modern software development workflows and tools. You will learn about the importance of individual team roles in IT. The curriculum has been developed in accordance with the latest labor market trends to match the requirements of recruiters and recruiting companies. In the final semester, all students will do an internship to perfect the acquired skills and knowledge in the business sector.

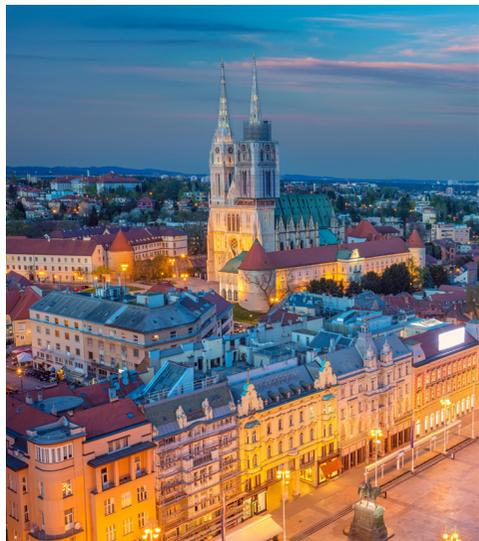
**When you graduate, you will receive a double title: Professional Specialist of Internet of Things and Artificial Intelligence from Algebra and Expert in Information Technology from EPITECH.**

## EXAMPLES OF JOBS WE'RE PREPARING YOU FOR

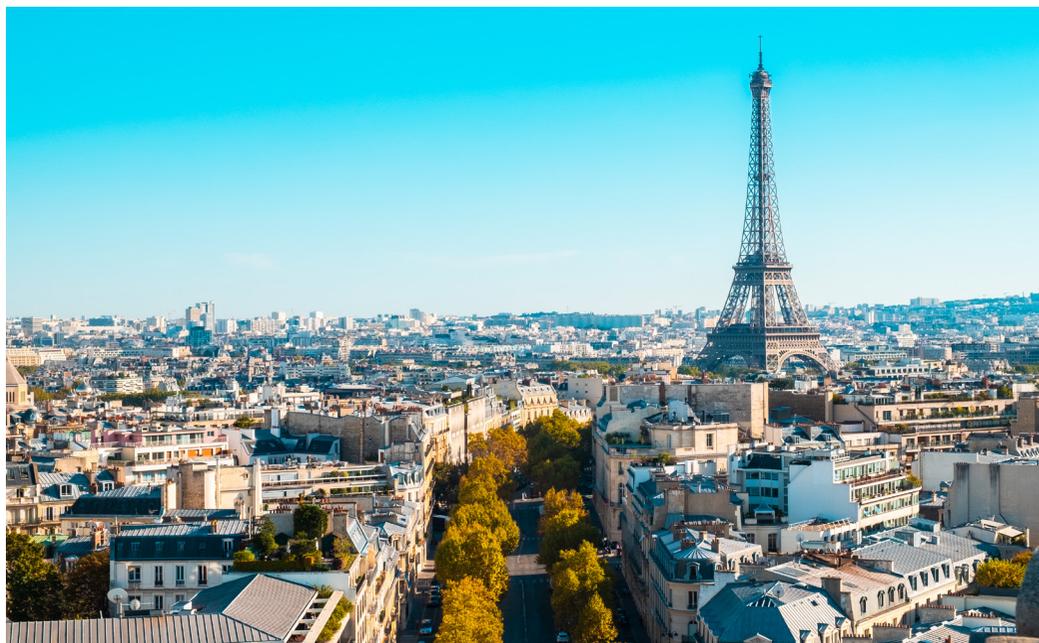
There are many jobs on the global labor market that our study program prepares students for. Some of these are:

- SOFTWARE ENGINEER/ARCHITECT FOR IOT APPLICATIONS
- WEB DEVELOPMENT ENGINEER FOR IOT
- SOFTWARE ENGINEER - JAVASCRIPT / RUBY - INTERNET OF THINGS
- SW DEVELOPMENT ENGINEER
- CLOUD COMPUTING SPECIALIST
- IOT ENGINEERS FOR APPLICATIONS IN (AGRICULTURE, MEDICINE, ELECTRICAL POWER DISTRIBUTION, SMART HOUSING/LIVING, TRANSPORT, WEARABLES, ...)
- AI SPECIALIST FOR IOT APPLICATIONS





**The first year of study will be delivered by Algebra University College in Zagreb, Republic of Croatia, while the second year of study will be delivered by EPITECH in Paris (Le Kremlin-Bicêtre), Republic of France. The quality of the study programme is established according to the European Standards and Guidelines for Quality Assurance in the European Higher Education Area and the European Approach for Quality Assurance of Joint Programmes.**



# Lecture Plan

## Graduate study programme in computer science

### INTERNET OF THINGS AND ARTIFICIAL INTELLIGENCE

## 1. YEAR Algebra University College, Croatia

### FIRST YEAR, SEMESTER 1

Course	ECTS	Status
Innovative Project 1	7	o
Data preparation and introduction to data visualization	4	o
Application of Scripting	5	o
Quantitative methods and Embedded Platforms and Operating Systems	4	0
Advanced Mobile Programming	5	E
Advanced Application Development Based on	5	E

### FIRST YEAR, SEMESTER 2

Course	ECTS	Status
Innovative Project 2	8	o
Machine learning concepts and techniques	4	o
Sensors and Actuators	5	o
Wireless Computer Networks 1	4	o
Advanced Information Systems Interoperability	4	E
Computer Vision Fundamentals	5	E
Advanced Programming	5	E
Rapid Development of Java Applications Using Programming	5	E

## 2. YEAR EPITECH, France

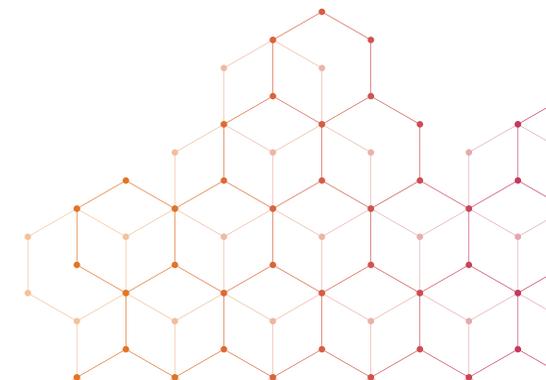
### SECOND YEAR, SEMESTER 3

Course	ECTS	Status
Innovative Project 3	15	o
Advanced C++	10	E1
Application Development	10	E1
Functional Programming	10	E1
Web Security	4	E2
Progressive Web App	4	E2
DevOps Level 1	2	E2
DevOps Level 2	3	E2
Graphs Algorithm and Matching	3	E2
Advanced Visualization of Massive Data	3	E2
React Native	4	E2
Applied Artificial Intelligence	5	E2

### SECOND YEAR, SEMESTER 4

Course	ECTS	Status
Graduation Thesis	30	o

IMPORTANT NOTE: O = obligatory course, E = elective course.



## ABOUT US

Algebra University College,  
Zagreb, Croatia



Algebra University College was founded as the flagship of Algebra Group, the largest private educational organization in the Republic of Croatia and the region. Established in 1998, Algebra Group employs more than 130 full-time employees and 800 external industry experts. Algebra University College now offers 13 higher education study programmes/specializations accredited by the Croatian Ministry of Science and Education and linked to the European Qualifications Framework (EQF).

Today, Algebra's infrastructure and the interdisciplinary nature of the existing study programmes open the space for expanding the capacities of Algebra University College through the accreditation of additional study programmes and the recruitment of new experts and scholars, strengthening the relevance and quality of our study programmes.

## École pour l'informatique et les nouvelles technologies (EPITECH), Paris, France

Since its establishment on 2 July 1999, the French higher education institution École Pour l'Informatique et les Nouvelles Technologies (EPITECH) has pioneered the implementation of a project-based learning approach. Students are trained to be experts in information technologies recognized by all sectors of activity. EPITECH's mission is to design a highly technical graduate profile, adaptable to any environment, international or national. It has been a leader in the emergence of future-oriented learners who are familiar with technical, scientific, social, economic and strategic fields.

To accomplish this, EPITECH offers a strong and up-to-date training in IT and business to broaden the opportunities for students to learn more about interculturality and the world of business to understand the global impact that digitalization and new technologies have on society and economy. For several years now, EPITECH has been strengthening its presence on the international scene via the creation of 4 campuses in Europe as well as one campus in Africa. Opening up the EPITECH environment and its programmes to international students is the next step in the development of the school.



Learn more about Admission procedures for this joint study program.  
Contact our Joint Admission Board:

**Admissions Office at Algebra**

00385 1 5809 313

[admissions@algebra.hr](mailto:admissions@algebra.hr)

**Admissions Office at Epitech**

0033 1 84 07 42 45

[international.relations@epitech.eu](mailto:international.relations@epitech.eu)

The content of this publication is the sole responsibility of Algebra University College.



Projekt je sufinancirala Europska unija iz Europskog socijalnog fonda.

The publication was co-financed by the European Union from the European Social Fund. Please find more information on EU funds at Ministry of regional development and EU funds website: [www.strukturnifondovi.hr](http://www.strukturnifondovi.hr).