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Artificial Intelligence for Connected Industries

AI4CI Master Programme

May 22, 2025

AI4CI Master

- Focuses on the application of **Artificial Intelligence** to **Connected Industries**
- The master training program covers:
 - Fundamentals of artificial intelligence and machine learning applied to networked systems
 - Automatics and advanced automation, for industrial networks and robotics
 - Advanced network architectures, IoT, and computer systems
- English language programme
- The AI4CI master is a European master opened at seven universities in France, Germany, Romania, Spain, and Ukraine.

AI4CI European Project

- **Goal:** to launch a new European master to train new experts in applied AI to networked systems used in connected industries
- <https://ai4ci.eu>
- Project start date: *Nov. 1, 2023*
- Co-funded by the European Commission through the Digital Europe Programme



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AI4CI Master in Europe

- **France:** CNAM Paris, CNAM Grand-Est Mulhouse, Avignon Université
- **Germany:** Ulm University
- **Romania:** Universitatea Babeş-Bolyai
- **Spain:** Universitat Politècnica de Catalunya
- **Ukraine:** National Technical University of Ukraine



France | Paris

CONSERVATOIRE NATIONAL
DES ARTS ET METIERS
(CNAM)



France | Mulhouse

ASSOCIATION DE GESTION
DU CONSERVATOIRE
NATIONAL DES ARTS ET
METIERS DE LA REGION
GRAND EST (CGE)



France | Avignon

AVIGNON UNIVERSITE (AU)



Spain | Barcelona

UNIVERSITAT POLITÈCNICA
DE CATALUNYA (UPC)



Romania | Cluj-Napoca

UNIVERSITATEA BABES
BOLYAI (UBB)



Ukraine | Kyiv

NATIONAL TECHNICAL
UNIVERSITY OF UKRAINE
IGOR SIKORSKY KYIV
POLYTECHNIC INSTITUTE
(NTUU)



Germany | Ulm

UNIVERSITÄT ULM (UUm)

AI4CI Master @ UBB

- Launch: 2025-2026
- <https://www.cs.ubbcluj.ro/inteligenta-artificiala-pentru-industrii-conectate/>
- Topics:
 - fundamentals of **artificial intelligence** and **machine learning** applied to connected systems;
 - **robotics** and advanced automation systems;
 - advanced **Internet of Things (IoT)**, network architectures and computer systems.
- Admission

AI4CI Semester 1

#	Denumirea disciplinelor / Course title	Credite ECTS/ ECTS credits	Responsabil curs / Course responsible
1	Inteligență Artificială și Invățare Automată pentru Sisteme Conectate / Artificial Intelligence and Machine Learning for Connected Systems	7	Lect. dr. Bogdan Mursa
2	Sisteme de Operare și Arhitecturi de Calculatoare / Operating Systems and Computer Architecture	6	Conf. dr. Darius Bufnea
3	Cercetări Operaționale / Operations Research	6	Conf. dr. Mihai Suciu
4	Etică și integritate academică. Metodologia cercetării științifice / Academic ethics and integrity. Methodology of scientific research	4	Lect. dr. Adriana Coroiu
5	Curs opțional 1 / Optional course 1	7	

Curs opțional 1 / Optional course 1

1	Metode Avansate de Analiza Datelor / Advanced Methods in Data Analysis
2	Probleme ale Economiei Contemporane - Principiile unei Economii Digitalizate / Contemporary Economic Issues - Digital Economy Principles

AI4CI Semester 2

#	Denumirea disciplinelor / Course title	Credite ECTS/ ECTS credits	Responsabil curs / Course responsible
1	Invățare Distribuită și Colaborativă / Distributed and Federated Learning	7	Lect. dr. Tudor Mihoc
2	Teoria și Ingineria Sistemelor de Control / Control System Theory and Engineering	6	Lect. dr. Bui Thang
3	Rețele Complexe: Analiza Datelor folosind Știința Rețelelor / Complex Networks: Data Analysis Using Network Science	7	Prof. dr. Camelia Chira
4	Curs opțional 2 / Optional course 2	3	
5	Curs opțional 3 / Optional course 3	7	

Curs opțional 2 / Optional course 2

- 1 Standarde Next-Generation IEEE 802.11 / Next-Generation IEEE 802.11 Standards
- 2 Mentenanța predictivă a roboților / Robot Predictive Maintenance

Curs opțional 3 / Optional course 3

- 1 Securitatea Rețelelor / Network Security
- 2 Modelarea și Verificarea Sistemelor Software - Calitatea Sistemelor Software / Computer System Modeling and Verification - Software Quality
- 3 Sisteme Paralele și Distribuite - Modele în Programarea Paralelă / Parallel and Distributed Systems - Models in Parallel Programming
- 4 Sisteme Peer-to-Peer și Blockchain - Securitatea în Blockchain / Peer-to-Peer Systems and Blockchain - Blockchain Security
- 5 Analiza Datelor și Descoperirea Cunoștințelor / Data Mining and Knowledge Discovery

AI4CI Semester 3

#	Denumirea disciplinelor / Course title	Credite ECTS/ ECTS credits	Responsabil curs / Course responsible
1	Invățare Automată Avansată / Advanced Machine Learning	7	Prof. dr. Laura Dioșan
2	Roboți Inteligenți / Learning Robots	7	Lect. dr. Horea Mureșan
3	Internet of Things Industrial / Industrial Internet of Things	6	Lect. dr. Bui Thang
4	Curs opțional 4 / Optional course 4	3	
5	Curs opțional 5 / Optional course 5	7	

Curs opțional 4 / Optional course 4

1	Inteligență Artificială Aplicată / Applied Artificial Intelligence
2	Aplicații IA în Managementul Amenințărilor Cibernetice / Applications of AI to Cyber-threat Management
3	Activități AI4CI: de la cercetare la business / AI4CI Activities: from research to business

Curs opțional 5 / Optional course 5

1	Sisteme de Operare pentru Roboți / Robot Operating Systems
2	Sisteme Embedded: Aplicații și Securitate Cibernetică - Modele Computaționale pentru Sisteme Embedded / Embedded Systems: Applications and Cybersecurity - Computational Models for Embedded Systems
3	Modelarea proceselor de afaceri - Automatizarea strategică a proceselor de afaceri / Business Process Modeling - Strategic Business Process Automation
4	Virtualizarea și Automatizarea Rețelelor/ Network Virtualization and Automation

AI4CI Semester 4

#	Denumirea disciplinelor / Course title	Credite ECTS/ ECTS credits	Responsabil curs / Course responsible
1	Practică în Specialitate / Internship in Specialization	20	Prof. dr. Camelia Chira
2	Proiect de Cercetare în Inteligență Artificială pentru Industrii Conectate / Research Project in Artificial Intelligence for Connected Industries	6	Prof. dr. Camelia Chira
3	Elaborarea Lucrării de Disertație / Elaboration of the Dissertation Thesis	4	Prof. dr. Camelia Chira

Short-term courses

- Semester 2: **Curs opțional 2 / Optional course 2**
- Semester 3: **Curs opțional 4 / Optional course 4**
- 3 ECTS
- Offered by AI4CI consortium partners
- Intensive, 1-week courses

Erasmus Opportunities

- UBB has signed agreements with all partner universities
- **Opportunity:** Students can spend 1 / 2 semesters abroad and study AI4CI in one of the partner universities:
 - ❖ CNAM Paris, France
 - ❖ Avignon Université, France
 - ❖ Ulm University, Germany
 - ❖ Universitat Politècnica de Catalunya, Spain

Scholarships

- **Opportunity**: Students enrolled in the AI4CI master can apply for scholarships offered by the AI4CI European project
- Applications will be launched in October 2025
- Regulations and criteria for awarding the scholarships will be announced in September 2025
- Scholarship grant: 3000 Euro (**estimated**)

Admission

- Registration and documents required:

<https://www.cs.ubbcluj.ro/admission/masters-programmes/specialisations/>

- **Assesement test**

Argumentative portfolio marked with ADMITTED/REJECTED: The candidate must submit an argumentative portfolio consisting of a curriculum vitae (in English, no more than two pages) and a scientific and professional career development plan (based on the initial specialization in the candidate's list of options) in the field of computer science (maximum two pages).

- **Classification criteria**

Candidates that have a degree in the field of study or related fields:

- i. 75% overall average grade of the years of study;
- ii. 25% grade of the bachelor's exam.

In the case of other candidates: the overall admission average is the mark obtained in the specialized test.

Admission Calendar

Calendar of the Admission Competition to the Faculty of Mathematics and Computer Science, master's level, July 2025

- ONLINE registration of candidates: **July 11-15, 2025** (on July 15 until 10:00 a.m.);
- Publication of the list of registered candidates: **July 16, 2025**;
- The admission tests (specialty tests): **July 17, 2025**;
- Publication of the test results: **July 17, 2025**;
- Submission of appeals and observations regarding the registration in the data base: **July 17-18, 2025**, to master.cs@ubbcluj.ro. On July 18, 2025, appeals can be sent until 12:00 noon.
- Solution of appeals: **July 21, 2025**;
- Publication of the initial results: **July 21, 2025**;
- Confirmation of the study places (1st round): **July 22-24, 2025**. On **July 24, 2025**, confirmation is possible until 12:00 noon;
- Publication of the results after the 1st round of confirmations: **July 24, 2025**;
- Confirmation of the study places (2nd round): **July 25-26, 2025**. On **July 26, 2025**, confirmation is possible until 12:00 noon.
- Publication of the results after the 2nd round of confirmations: **July 26, 2025**;
- Confirmation of the study places (3rd round): **July 27-28, 2025**. On **July 28, 2025**, confirmation is possible until 12:00 noon.
- **Final results: July 29, 2025.**

<https://www.cs.ubbcluj.ro/admission/masters-programmes/admission-calendar/>



Q & A

Contact

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