COURSE CATALOGUE - BACHELOR

FALL 2026

International students enrolled in the ECE Exchange Programs can select English taught courses from the following Bachelor programs:

- B1 - Bachelor of Artificial Intelligence
- B2 - Bachelor of Artificial Intelligence
- B3 - Bachelor of Artificial Intelligence

Please take into account that **courses from different programs cannot be mixed**. Allocation to program and courses will be done **based on student completion of prerequisites and avabilities.**

Starting and ending dates will vary according to the program.

PROGRAMS	COURSES AND EXAMINATIONS
B1 - Bachelor of Artificial Intelligence	October 1st to December 18th 2026
B2 - Bachelor of Artificial Intelligence	September 11th to December 17th 2026
B3 - Bachelor of Artificial Intelligence	October 1st to December 18th 2026

ABOUT

>TECH FOUNDATIONS, FUTURE INNOVATIONS

Our Computer Science Bachelor at ECE introduces tech fundamentals through NoCode, data, cybersecurity, and DevOps. Students explore contemporary challenges with the SHIFT program and develop teamwork and communication skills. Hands-on projects in C programming, Linux, and web development lay the groundwork for their tech journey.

RHYTHM

>FOUR DAYS PER WEEK (1 DAY FREE)

COURSE CATALOGUE - BACHELOR PROGRAMS - FALL 26

B1 - BACHELOR OF ARTIFICIAL INTELLIGENCE

FIRST SEMESTER - ENGLISH

>PREREQUISITES
Applicants must be in their final year of secondary school (high school) to first year of higher education, preferably in a technological or science-oriented track.

MODULE	COURSE	HOURS	30 ECTS	ATTENDANCE
UEP 1 : Design	**Mathematics for Computer Science**	36	4	Hybrid (30h In-Person, 6h Remote)
	Introduction to UX/UI & Dynamic Web	24	3	In-Person
	C Programming & Algorithmic	54	5	Hybrid (42h In-Person, 12h Remote)
UEP 2 : Make	**Network Fundamentals for Developers**	24	3	In-Person
	Web Development /HTML/CSS/JS	30	3	Hybrid (24h In-Person, 6h Remote)
	Data Exploration	14	2	In-Person
	Linux & AI Development Environment	24	3	In-Person
UEP 3 : Manage	**Communication & Professional Conduct**	24	2	In-Person
	Soft Skills for IT	18	1	In-Person
	French as a Foreign Language	24	2	In-Person
UEP 4: Contemporary Issues and Transformations of the World of Tomorrow	**SHIFT - Hackathon CSR & AI (client-based)**	12	2	In-Person

COURSE CATALOGUE - BACHELOR PROGRAMS - FALL 26

B1 - BACHELOR OF ARTIFICIAL INTELLIGENCE

FIRST SEMESTER - ENGLISH

COURSE	COURSE DESCRIPTION
Mathematics for Computer Science	This foundational course provides the essential mathematical concepts that form the backbone of computer science and artificial intelligence. Students will explore topics such as discrete mathematics, logic, set theory, and basic algebra, which are critical for developing algorithmic thinking and modeling computational problems.
Introduction to UX/UI & Dynamic Web	This course introduces the fundamental principles of User Experience (UX) and User Interface (UI) design. Students will learn how to approach design from a user-centered perspective and use introductory JavaScript to transform static web pages into dynamic, interactive experiences, setting the stage for more advanced front-end development.
C Programming & Algorithmic	A foundational course in programming, this class uses the C language to teach core concepts such as variables, control structures, memory management, and functions. The primary focus is on developing strong algorithmic thinking and problem-solving skills, providing a robust base for learning other programming languages.
Network Fundamentals for Developers	This course covers the core principles of computer networking from a developer's perspective. Students will learn about the essential protocols (TCP/IP, HTTP, DNS) and architectures that allow applications to communicate over the internet, providing the necessary context for future web and full-stack development.
Web Development /HTML/CSS/JS	This course covers the essential building blocks of the modern web. Students will gain hands-on experience using HTML to structure content, CSS to design and style visually appealing layouts, and JavaScript to add interactivity, creating a solid foundation for all future web-related projects.
Data Exploration	As a first step into the world of data, this course teaches students how to explore, clean, and visualize datasets. Using basic statistical methods and data visualization tools, students will learn to uncover initial insights, identify patterns, and ask the right questions about data before applying more complex analysis techniques.
Linux & AI Development Environment	This practical course equips students with the essential tools of the trade for software and AI development. Students will master the Linux command line, learn to manage software packages, and set up a complete Python-based development environment, ensuring they are prepared for more advanced technical courses.
Communication & Professional Conduct	This course focuses on the core principles of effective communication and ethical behavior in a professional setting. Students will practice written and oral communication, learn about workplace etiquette, and develop the skills needed to build a strong professional identity from the beginning of their careers.
Soft Skills for IT	This course develops the essential interpersonal skills required to thrive in a technology-driven environment. The curriculum focuses on effective teamwork, providing and receiving constructive feedback, and understanding the collaborative dynamics specific to IT and software development projects.
French as a Foreign Language	This course is designed for international students with little to no prior knowledge of the French language. It aims to build a solid foundation for everyday communication and to facilitate academic and social integration. Students will learn fundamental grammar, essential vocabulary for daily situations, and basic conversational skills. The focus is on practical application to help students navigate their new environment with confidence.
SHIFT - Hackathon CSR & AI (client-based)	The SHIFT Hackathon is a major, interdisciplinary event where hundreds of students from across the OMNES Education group — including engineering, business, design, and communication — unite to tackle a pressing real-world challenge. In this high-energy, competitive setting, cross-functional teams collaborate intensively to develop innovative solutions for a client or industry partner. The event pushes participants to blend their unique expertise and creativity, culminating in a pitch to a panel of experts.

COURSE CATALOGUE - BACHELOR PROGRAMS - FALL 26

B2 - BACHELOR OF ARTIFICIAL INTELLIGENCE

FIRST SEMESTER - ENGLISH

>PREREQUISITES
Applicants must hold a high school diploma (or equivalent) and have some prior knowledge of computing and/or digital technologies.

MODULE	COURSE	HOURS	30 ECTS	ATTENDANCE
UEP 1 : Design	**Software Architecture & Design Patterns**	30	3	Hybrid (24h In-Person, 6h Remote)
	Advanced Mathematics	30	3	In-Person
	ReactJS Web Development	30	3	In-Person
UEP 2 : Make	**Machine Learning**	30	3	Hybrid (18h In-Person, 12h Remote)
	TechAway - Generative AI (Level 2)	30	2	In-Person
	Advanced Databases / NoSQL	30	3	Hybrid (18h In-Person, 6h Remote)
	Python Programming	24	3	In-Person
UEP 3 : Manage	**Soft Skills: Collaborating in an IT Environment**	18	2	In-Person
	French as a Foreign Language	30	3	Hybrid (12h In-Person, 6h Remote)
	AI Hackathon Project	18	4	In-Person
UEP 4: Contemporary Issues and Transformations of the World of Tomorrow	**SHIFT - Hackathon CSR & AI (client-based)**	12	1	In-Person

COURSE CATALOGUE - BACHELOR PROGRAMS - FALL 26

B3 - BACHELOR OF ARTIFICIAL INTELLIGENCE

FIRST SEMESTER - ENGLISH

COURSE	COURSE DESCRIPTION
Software Architecture & Design Patterns	This course covers the principles of software architecture and design patterns for building robust, scalable, and maintainable applications. Students will learn to understand modern software architectures, master key design patterns, design modular and scalable systems, and make appropriate architectural decisions for different contexts.
Advanced Mathematics	This course provides an in-depth study of the mathematical concepts essential for AI, including linear algebra, probability, statistics, and optimization. The objective is to strengthen the mathematical foundation for AI, understand the theoretical underpinnings of algorithms, model complex problems, and analyze and interpret mathematical models.
ReactJS Web Development	This course focuses on developing modern, interactive web interfaces using ReactJS and integrating them with backend APIs. Students will learn to create dynamic interfaces with React, structure a modern front-end application, manage state and components, and develop high-performance web applications.
Machine Learning	This course delves into advanced machine learning methods with a focus on model optimization, feature engineering, and advanced performance evaluation. Students will apply machine learning algorithms to complex datasets, deepen their understanding of supervised and unsupervised algorithms, optimize and tune models (using techniques like cross-validation), improve data and feature quality, and evaluate model performance.
TechAway - Generative AI (Level 2)	This module explores advanced generative AI technologies and their applications in intelligent systems. Students will gain an understanding of generative models, use generative AI tools, integrate these models into applications, and identify the associated ethical and technical challenges.
Advanced Databases / NoSQL	This course introduces modern databases and NoSQL architectures suited for distributed systems and data-intensive applications. Students will learn the limitations of relational databases, explore various NoSQL models (document, graph, key-value), design appropriate data architectures, and optimize data management strategies.
Python Programming	This course provides an in-depth study of Python for software development, automation, and AI/data-related applications. Students will master advanced Python concepts, develop complex scripts and applications, utilize key data/AI libraries, and produce clean, well-structured code.
Soft Skills: Collaborating in an IT Environment	This course develops the interpersonal skills necessary for working effectively within technical teams. Key objectives include improving professional communication, collaborating efficiently in an IT team, managing conflicts and decision-making, and developing a professional demeanor.
French as a Foreign Language	This course is designed for international students with little to no prior knowledge of the French language. It aims to build a solid foundation for everyday communication and to facilitate academic and social integration. Students will learn fundamental grammar, essential vocabulary for daily situations, and basic conversational skills. The focus is on practical application to help students navigate their new environment with confidence.
AI Hackathon Project	This intensive project challenges students to work in teams to develop an innovative, AI-based solution. The goals are to put technical skills into practice, develop a functional AI solution under time constraints, and present the project to a jury
SHIFT - Hackathon CSR & AI (client-based)	The SHIFT Hackathon is a major, interdisciplinary event where hundreds of students from across the OMNES Education group — including engineering, business, design, and communication — unite to tackle a pressing real-world challenge. In this high-energy, competitive setting, cross-functional teams collaborate intensively to develop innovative solutions for a client or industry partner. The event pushes participants to blend their unique expertise and creativity, culminating in a pitch to a panel of experts.

COURSE CATALOGUE - BACHELOR PROGRAMS - FALL 26

B3 - BACHELOR OF ARTIFICIAL INTELLIGENCE

FIRST SEMESTER - ENGLISH

>PREREQUISITES
Applicants must have completed two years of higher education in a scientific or technological field (e.g., an associate degree, diploma, or equivalent qualification).

MODULE	COURSE	HOURS	30 ECTS	ATTENDANCE
UEP 1 : Design	Datamining	20	3	In-Person
	Full-Stack Development	18	2	In-Person
	UX/UI & Advanced AI Visualization	14	2	In-Person
UEP 2 : Make	Advanced Python & AI Libraries	30	3	Hybrid (24h In-Person, 6h Remote)
	Advanced Machine Learning	18	2	In-Person
	TechAway – Generative AI (Level 3)	30	2	Self-Paced
	Advanced AI Libraries & Workflows	18	2	In-Person
UEP 3 : Manage	Soft Skills: Communication & Crisis Management	18	2	In-Person
	French as a Foreign Language	30	2	In-Person
	Project Management & Agile Methods	24	2	Hybrid (18h In-Person, 6h Self-Paced)
	AI Practice Based Project	50	6	Hybrid (10h In-Person, 40h Self-Paced)
UEP 4: Contemporary Issues and Transformations of the World of Tomorrow	SHIFT - Hackathon CSR & AI (client-based)	18	1	In-Person
UEP 5 : Technological Culture	Ethics & AI	12	1	Hybrid (6h In-Person, 6h Remote)

COURSE CATALOGUE - BACHELOR PROGRAMS - FALL 26

B3 - BACHELOR OF ARTIFICIAL INTELLIGENCE

FIRST SEMESTER - ENGLISH

COURSE	COURSE DESCRIPTION
Datamining	This course explores data mining techniques used to identify trends, relationships, and hidden insights within large datasets. Students will learn to understand various data mining methods, identify patterns and correlations in data, utilize analysis and visualization tools, and apply these techniques to real-world case studies.
Full-Stack Development	This course enables students to develop complete applications by mastering both front-end and back-end technologies. Key topics include designing comprehensive web applications, integrating front-end, back-end, and databases, developing APIs and web services, and deploying functional applications.
UX/UI & Advanced AI Visualization	This course focuses on user experience (UX/UI) design and the advanced visualization of AI data and results. The goal is to make intelligent systems more understandable and accessible. Students will learn to design user-centered interfaces, effectively visualize complex AI outputs, enhance the user experience in intelligent applications, and translate complex findings into clear and comprehensible visualizations.
Advanced Python & AI Libraries	This course provides an in-depth exploration of Python and its advanced libraries for artificial intelligence and data science. Students will master key Python libraries for AI, develop advanced data scripts and applications, efficiently manipulate complex datasets, and learn to structure high-performance, maintainable code.
Advanced Machine Learning	This course delves into advanced machine learning techniques and their application to complex prediction and analysis problems. Students will gain an understanding of advanced ML models, learn to optimize and compare them, manage data and training pipelines, and apply these sophisticated techniques to real-world projects.
TechAway – Generative AI (Level 3)	This module explores the advanced applications of generative AI and the integration of generative models into real-world applications. Participants will learn to understand advanced generative AI architectures, design applications that incorporate generative models, experiment with various content generation tools and frameworks, and analyze the technical and ethical impacts of this technology.
Advanced AI Libraries & Workflows	This course introduces the advanced frameworks and workflows used to develop, train, and deploy artificial intelligence solutions. Students will master advanced AI libraries, learn to structure effective AI development workflows, automate data and model pipelines, and facilitate the deployment and maintenance of AI solutions.
Soft Skills: Communication & Crisis Management	This course is designed to develop essential communication and management skills for navigating complex and critical situations within a technology-focused professional environment. Students will learn to improve their professional communication, manage crisis and conflict situations, develop leadership and decision-making abilities, and communicate effectively with both technical and non-technical teams.
French as a Foreign Language	This course is designed for international students with little to no prior knowledge of the French language. It aims to build a solid foundation for everyday communication and to facilitate academic and social integration. Students will learn fundamental grammar, essential vocabulary for daily situations, and basic conversational skills. The focus is on practical application to help students navigate their new environment with confidence.
Project Management & Agile Methods	This course introduces modern project management methodologies and agile approaches commonly used in technology and artificial intelligence projects. Students will understand fundamental project management principles, master agile methods such as Scrum and Kanban, learn to plan and track IT projects, and develop skills for working effectively within a project team.
AI Practice Based Project	This course is designed for international students at a beginner to intermediate level, offering a pathway for both new learners and those looking to enhance their existing skills. For beginners, the course will establish a strong foundation in essential grammar, vocabulary, and conversational abilities. Intermediate learners will focus on reinforcing their knowledge, expanding their vocabulary for more complex topics, and improving fluency in both oral and written communication.
SHIFT - Hackathon CSR & AI (client-based)	The SHIFT Hackathon is a major, interdisciplinary event where hundreds of students from across the OMNES Education group — including engineering, business, design, and communication — unite to tackle a pressing real-world challenge. In this high-energy, competitive setting, cross-functional teams collaborate intensively to develop innovative solutions for a client or industry partner. The event pushes participants to blend their unique expertise and creativity, culminating in a pitch to a panel of experts.
Ethics & AI	This course addresses the critical ethical, social, and regulatory issues surrounding the development and deployment of artificial intelligence systems. Students will learn to understand the ethical stakes of AI, identify risks related to data bias and usage, analyze key regulatory frameworks like GDPR, and cultivate a responsible approach to building and implementing AI.