

Major	Industrial Engineering		
Master's programme	TECHNOLOGIES EMERGENTES POUR L'ÉDUCATION ET LA FORMATION		
Master's Code	TEEF		
Qualification awarded	Master's degree in Industrial Engineering		
Programme director	Sylvain Fleury		
Mode of study	Level of qualification	Field of study	Language of study
Alternance	Master	Engineering	French
ECTS	Campus	Length of programme	Specific arrangements for recognition of prior learning
60	Laval	1	No
Keywords	Pedagogy, virtual reality, artificial intelligence		

Admission requirements

Type	Level	Way
Previous degree	Niveau Master 1 informatique ou disciplines voisines	Certificate
French Proficiency	Level B2	

Applicants interested in the programme must follow the online procedure and adhere to the schedule.

<https://artsetmetiers.fr/en/formation/master-admissions>

Overall objectives

The TEEF Master program aims to develop expertise at the crossroads of **education, cognitive science, and emerging technologies** such as **Virtual Reality (VR), Augmented Reality (AR), Artificial Intelligence (AI)**, and **learning analytics**. The program trains professionals capable of designing, implementing, and evaluating innovative learning environments by integrating pedagogical and technological dimensions.

- Graduates will acquire both **theoretical and practical knowledge** to lead projects in educational innovation, digital learning design, and technology-enhanced training systems, preparing them for **research, industry, or instructional design positions** in international and multidisciplinary contexts.
- **Designing and evaluating digital learning environments:** analysis of pedagogical needs, design of hybrid and immersive learning situations, assessment of learning outcomes, and ethical considerations in educational technologies.
- **Integrating emerging technologies in education and training:** implementation of XR tools, intelligent tutoring systems, and adaptive learning platforms to support individualized and collaborative learning experiences.
- **Understanding human learning and cognition:** application of findings from cognitive psychology and neuroscience to improve instructional design, learner engagement, and knowledge retention.
- **Leading innovation and transformation in education:** managing change in organizations, developing training programs, and promoting evidence-based pedagogical practices supported by data and research.

Programme learning goals

The table below outlines the abilities to be acquired and the expected proficiency levels according to the following learning dimensions:

- 1) **To understand and critically analyze** current and emerging challenges in education and training related to the integration of new technologies (Artificial Intelligence, Extended Reality, data analytics, learning platforms).
- 2) **To be able to design and implement** pedagogical scenarios and digital learning environments that effectively combine cognitive, educational, and technological dimensions.
- 3) **To understand, explain, and apply** key concepts, models, and methods from learning sciences, cognitive psychology, and instructional design to support the development of adaptive and inclusive learning systems.
- 4) **To be skilled in the use of emerging technologies** (Virtual and Augmented Reality, AI-driven tutoring systems, learning analytics tools) for the design, evaluation, and continuous improvement of educational experiences.
- 5) **To lead and innovate** in the transformation of education and training ecosystems by adopting a systemic and evidence-based approach, capable of fostering collaboration among educators, engineers, and decision-makers in national and international contexts.

Sets of expected abilities	Expected abilities	Expected proficiency level
		R&D
<i>Disciplinary knowledge and reasoning</i>	1.1 Knowledge of underlying mathematics and science	4
	1.2 Core fundamental knowledge of engineering	2
	1.3 Advanced engineering fundamental knowledge, methods and tools	3
<i>Personal and professional skills attributes</i>	2.1 Analytical reasoning and problem solving	4
	2.2 Experimentation, investigation and knowledge discovery	5
	2.3 System thinking	5
	2.4 Ethics, though and learning	4
	2.5 Ethics, equity and other responsibilities	4
<i>Interpersonal skills: Teamwork and communication</i>	3.1 Teamwork	5
	3.2 Communications	3
	3.3 Communications in foreign language	3
<i>Conceiving, Designing, implementing, operating, innovating and entrepreneurship in the context of Corporate Social Responsibility</i>	4.1 External, societal and environmental context	2
	4.2 Enterprise and business context	2
	4.3 Conceiving, systems engineering and management	3
	4.4 Designing	3
	4.5 Implementing	2
	4.6 Operating	5
	4.7 Leading engineering endeavours	3

	4.8 Engineering entrepreneurship	2
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Programme structure

Learning outcomes are reached through a well-balanced training program that combines theoretical and practical learning sequences, during which students are placed in both academic and real-life industrial configurations, in order to develop multiple transversal skills.

Code	Title	Sem.	Year	ECTS	Hours	Compulsory/ Optional	Teaching modalities
	Softsills	1-2	2	5	36	Compulsory	Course
	Pedagogy	1-2	2	10	96	Compulsory	Course/exercises/project
	Digital tools	1-2	2	20	180	Compulsory	Course/exercises/project
	Psychology	1-2	2	5	42	Compulsory	Course/exercises
	Research	1-2	2	10	102	Compulsory	Project
	Internship	1-2	2	10		Compulsory	Internship

Table 1 : Detail of the modules of the programme.

Study and assessment rules

Each module can be evaluated by means of practical works, projects, reports, oral presentations, exams and the assessment rules are explained at the beginning of the programme. Each module is evaluated between 0 and 20.

For each bloc, the final mark must be ≥ 10 , by meaning the marks of the bloc's modules.

When a block is not validated, a make-up exam is offered for modules graded below 10 in that block.

Graduation requirements

To be graduated, students need to comply with the following rules:

Master 2

- Validate 60 ECTS during the year

Careers of graduates and access to further studies

Depending on their results and professional expectations, graduate students can continue their professional careers as a:

- **Target sectors**
 - o Industrie 4.0
 - o Higher education and research institutions
 - o Training organizations
 - o Training departments of large corporations
 - o Design of digital training tools
 - o Edtech companies
- **Career Opportunities**
 - o Trainer/Training Engineer
 - o Instructional Designer
 - o Researcher of Lecturer
 - o Designer of XR and AI-based training tools

- Project manager
- Entrepreneur