SCHOOL	Innovative Technologies in the Field of Art
ACADEMIC YEAR	THREE-YEAR PROGRAM I - 2025/2026
SUBJECT	975 Fondamenti di informatica (nuove tecnologie) A
TYPE OF SUBJECT	Theoretical-Practical
NUMBER OF HOURS PER LESSON	3
NUMBER OF ECTS CREDITS	4
DISTRIBUTION OVER THE ACADEMIC YEAR	I SEMESTER

EDUCATIONAL OBJECTIVES AND EXPECTED RESULTS

The course aims to provide the essential foundational elements required to navigate the digital world in its ongoing evolution. Specifically, it intends to: - Provide a comprehensive understanding of information technology, encompassing both hardware and software. - Provide the foundational principles of programming with JavaScript.

Knowledge and understanding	The objective is to provide the necessary knowledge to transition from a passive relationship with the world of information technology, where the concept of the user predominates, to a participatory and, consequently, more active relationship with it, prior to the in-depth studies planned in other academic disciplines in subsequent years.
Applying knowledge and understanding	The in-depth information provided on information technology is sufficient to enable a concise analysis of its application in real-world scenarios, where a design evaluation of the use of specific hardware equipment or software operating environments is required.
Making judgements	The in-depth examination, which is integrated throughout the course, of the impact of information technology in various social domains, reflects the increasingly pressing demands. This examination is based on the knowledge of potential users of the services that digital technologies can provide. It necessitates a meticulous decision-making assessment, not only to offer a straightforward on-demand service, but also to provide a genuine evaluation of the appropriateness of introducing these technologies.
Communication skills	The extensive use of real-life examples during the lessons aims to combine the wonder of discovering something new with the desire to express it, and consequently, the pleasure of sharing it.
Learning skills	The illustration of the fundamental processes of digital technologies serves as an indispensable foundation, encompassing both specific languages and aspects more closely tied to the concept of algorithms, to facilitate a natural approach to the various application domains of computer science.

CONTENTS	PART ONE • Introduction to the course: topics, objectives, and examination procedures • Information Technology: - Definition - Fields of study and application • Historical development of numbering systems: - From the 'natural' numerical bases to the binary system - Examples of representation in various bases, calculations, and fundamental transformations - From bits to qubits • The theoretical foundations of the Computer: From Hilbert's 'decidability problem' to Gödel's 'incompleteness theorem' and the 'Turing machine' • The Computer (Von Neumann's machine) - Central Processing Unit (CPU) - Memory Unit - Input/Output Unit - Bus • Hardware and Software Architecture of a Personal Computer - Components of a Personal Computer - Types of computers: from supercomputers to smartwatches • Introduction to Operating Systems - Character-based and graphical user interfaces - Mac OS - Microsoft Windows - Linux operating system - Virtual Machines SECOND SECTION • Algorithms and programming languages - Flowcharts - Examples of algorithm development based on real-world problems • Introduction to Programming with JavaScript - Examples of developing programs based on real-world problems • [Networks]
ADOPTED METHODOLOGY	[X] In Person The lessons are consistently conducted in a face-to-face format, incorporating opportunities for discussion on the presented topics, as well as specific exercises related to them.
ASSESSMENT METHODS	Written examination during the course, scheduled for the date corresponding to the final lesson. If the 'written' test is deemed sufficient (score ranging from 18 to 30): 1) It is possible to formally register the vote 2) Alternatively, it is possible to undertake the oral examination on the topics corresponding to the questions that were incorrect in the written test, as well as on the topic of 'Networks' (if covered in class). If the written test is deemed insufficient, or if it has not been completed: Oral examination on the topics of the entire program and on the subject of 'Networks' (if conducted in class) N.B.: The written examination is conducted only once (i.e., it is not repeated) on the date corresponding to the final lecture. Consequently, individuals who attend an examination session without having completed the written examination will be required to undertake the examination on the topics of the entire program and on the subject of 'Networks' (if covered in class).