



INTERNATIONAL UNIVERSITY MASTER'S DEGREE COURSE
IN
"Digital Health: Engineering and Managing High-Quality Medical Software and Systems"
ACADEMIC YEAR 2023/24

ARTICLE 1 - AIMS AND OBJECTIVES OF THE MASTER'S COURSE

The Giustino Fortunato Telematic University establishes, for the Academic Year 2023/24, the First Level International University Master's Degree Course in "**Digital Health: Engineering and Managing High-quality Medical Software and Systems**", pursuant to Art. 3, paragraph 9, of Italian Ministerial Decree No. 270 of 22 October 2004 and subsequent amendments/integrations and in accordance with the First and Second Level University Master's Regulations.

The Master's programme is aimed at graduates who wish to acquire advanced knowledge in the design, engineering and management of advanced health systems, including those based on Artificial Intelligence technologies.

The training course aims to develop skills, also from a managerial perspective, of the analysis, design and control functions of complex health systems. The focus will be on i) system certification issues according to current regulations; ii) quality requirements and objectives; iii) sector standards; iv) verification and validation tools; v) development, management and control processes; and vi) the most advanced founding technologies (i.e., Machine Learning, IoT, etc.).

ARTICLE 2 – ADDRESSES

The Master's Degree Course is aimed at postgraduate students in computer science, information technology, electrical engineering, electronics, telecommunications, mathematics, physics, or similar, as well as clinical engineering, medicine and surgery, or related.

ART. 3 - DURATION, LOCATION AND ATTENDANCE OF THE COURSE

The International University Master's Degree Course lasts one year for a teaching load of 1500 hours corresponding to 60 CFU. The training course is conducted in mixed presence/on-line mode. Attendance by those enrolled in the course activities is compulsory and will be obtained by means of attendance collection and/or tracking on the platform.

An attendance of 80 per cent of the total course duration is required to obtain the degree.

The training will be delivered at the headquarters of the Telematic University Giustino Fortunato, Viale Raffaele Delcogliano, 12 - 82100 Benevento, and on-line through the connection to the Unifortunato platform where the trainee will have access to the didactic material and to the lessons. The participant's access to the Unifortunato platform will be through a user id and password. The Unifortunato platform records the student's activities in compliance with the regulations on the processing of personal data (Legislative Decree 196/2003). The platform and the assistance and tutoring services operate in compliance with the requirements of the Interministerial Decree of 17.4.2003.

ARTICLE 4 - COURSE PROGRAMME



The Master's Degree Course is divided into modules (60 CFU in total) including specific topics, functional to the disciplines object of study, according to the following schedule:

MODULE I - Quality Management, Project Management and Risk Management (ING_INF/05) 8 CFU	The module focuses on the main aspects of product and process quality. In particular, it introduces the processes of project management, risk management and incident management, industry standards (ISO 13485, ISO 14971, IEC 64234, etc.) and the issues of certification of Medical Devices and Software as a Medical Device in the European context.
MODULE II - IoT & Embedded Systems for healthcare (ING_INF/03) 5 CFU	The module presents an introduction to embedded systems, IoT and embedded IoT systems. Then several applications for the healthcare sector are introduced, including tele-monitoring and tele-medicine services.
MODULE III - Biomedical equipment (ING_INF/06) 5 CFU	The module introduces the main classes of biomedical equipment and biomedical equipment software. Biomedical equipment with special reference to diagnostic imaging will be analysed by describing their connection in the hospital network and the remote management of state-of-the-art equipment. Predictive approaches with AI software for machine maintenance and repair will be described.
MODULE IV - AI for medicine (ING_INF/05) 8 CFU	The module presents an overview of artificial intelligence and machine learning methods and algorithms, discussing their properties and showing examples of their use in different application scenarios related to the health domain. The module will complement the theoretical study with an experimental part in which it will show how artificial intelligence and machine learning methods and techniques can be used to solve problems in the health domain. That is, starting from a correct formulation of the problem of interest, with the choice of the most appropriate approach or algorithm, and providing indications and examples on how to organise and conduct an experimental validation of the results obtained.
MODULE V - Software engineering (ING_INF/05) 5 CFU	The module presents healthcare software development processes and frameworks (including V-model and Scrum), object and component-based SW design techniques, design patterns, design controls and software testing techniques and tools.
MODULE VI - Electronic Health Records and related Standards (ING_INF/05) 5 CFU	The module presents the architectural models, the main enabling technologies and health informatics standards (such as DICOM, HL7 CDA2, HL7 FHIR, IHE profiles) necessary to realise syntactically and semantically interoperable health information systems. Particular emphasis will be placed on IT systems supporting e-health applications, such as electronic health records and the electronic health record.
MODULE VII - Data Analytics for Healthcare (ING_INF/05) 5 CFU	The module focuses on technologies and standards for managing and exploiting Big Data. Tools and methodologies for Big Data management, Business Intelligence and Visual Analytics will be presented.
MODULE VIII - Improving Technical English (L-LIN/12) 4 CFU	The module aims to provide the terminology of English for Specific Purposes (ESP), with a focus on technical English, while consolidating the basic grammatical structures of standard English. Technical English refers to a common core language used in numerous professional fields: science, technology, medicine, IT etc. The acquisition of technical-specialist terminology not only facilitates written



	and oral communication between native and non-native speakers, but also reduces the risk of errors. Originally limited to the aviation industry, today it serves as a common basis for a variety of occupations and plays an important role for many professional profiles including engineers, doctors, technologists and computer scientists.
COMPANY INTERNSHIP and FINAL TEST 15 CFU	The company internship is designed to enable students to develop a project of industrial interest with the guidance of company managers. The final consists of a discussion of the paper developed at the end of the placement.

ARTICLE 5 - ENROLMENT FEE AND MANAGEMENT OF THE MASTER'S DEGREE COURSE

The registration fee is Euro 5,000.00. Payment may be made in a single instalment upon enrolment, or in three instalments. The first instalment of Euro 1,516.00 (of which Euro 16.00 for stamp duty) must be paid upon enrolment; the second instalment of Euro 1,500.00 within two months of enrolment and the third instalment of Euro 2,000.00 within five months of enrolment.

A student who is not up to date with payments will not be able to access the e-learning platform and the final examination for the degree.

Foreign students who do not receive a visa from the competent authorities, even though they have applied for one at least six months before the start of the classroom activities, will be entitled to a refund of the instalments paid.

ARTICLE 6 - ADMISSION AND REGISTRATION PROCEDURES

Admission to the Master's Degree Course requires completion of the admission/enrolment form, which can be downloaded online and is attached to this notice; the form must be sent, by 31 December 2023, by email to segreteria@unifortunato.eu. Only if the course reaches at least the minimum number of enrolments, the student secretariat is allowed to accept further enrolments, even if produced late, as long as they are made before the official starting date of the Course.

The application must be accompanied by the following documents:

1. Identification document.
2. All educational documents, including degree certificates and mark sheets
3. CV
4. Motivational letter
5. Declaration of Value (DOV) or CIMEA certificate before the start of the program (only students who got the degree outside the European Union).

The admission committee will evaluate the application and will send the application decision to the students via email. The student (whom application is accepted to the master program) must send the following documents within two weeks the reception of admission notification:

1. Identification document.
2. The receipt of payment of the first instalment of the enrolment fee equal to Euro 1516.00 (of which Euro 16.00 for stamp duty) to be paid into the bank account BIC/SWIFT: BPPIITRRXXX - IBAN: IT88 K 07601 15000 000095641692 made out to Università Telematica Giustino Fortunato of Benevento, including "Master Digital Health 2023" as payment reference.



ARTICLE 7 – ACTIVATION

Activation of the Master's Degree Course is conditional on reaching the minimum number of enrolled students, set at 10. Therefore, if the Master is not activated, the student will be entitled to a refund of the sum paid at the time of enrolment.

ART. 8 - INTERNSHIP and FINAL TEST

The training includes a company internship for 600 hours.

At the end of the Master's Degree Course, those enrolled who have fulfilled their attendance obligations and submitted a final dissertation will be awarded the International University Master's Degree Level I in 'Digital Health: Engineering and managing high-quality medical software and systems', equivalent to 60 C.F.U., which can be used in accordance with current legal provisions.

ARTICLE 9 - DIRECTOR AND STEERING COMMITTEE OF THE MASTER'S DEGREE COURSE

Responsibility and co-ordination is assumed by the Director Prof. Antonio Coronato and the members of the board of directors, consisting of the Director, Prof. Luciano Mirarchi and Prof. Muddasar Naeem.

ARTICLE 10 - REGULATIONS IN FORCE

For any information not explicitly provided, please refer to the regulations in force.