



**UNIVERSITÀ
DI SIENA
1240**

General Information

Title
Postgraduate Master's Programme (First-level): CARDIAC, THORACIC AND VASCULAR ULTRASOUND
Educational Objectives
The Master's Programme aims to train experts in cardiac, vascular and lung ultrasonography by providing in-depth theoretical and practical education. Thanks to the participation of leading national and international lecturers, students will have the opportunity to develop up-to-date skills and engage, through lectures and interactive sessions, with highly topical subjects, ranging from the fundamentals of cardiovascular anatomy and physiology to the development of practical and analytical skills for more advanced and complex examinations. These include the assessment of the main cardiomyopathies and valvular heart diseases in both acute and chronic settings. The Programme will train personnel dedicated to performing echocardiographic examinations ("sonographers") in support of cardiologists, while also providing advanced training for medical specialists and general practitioners, enabling them to acquire comprehensive expertise in ultrasound methods in both hospital and outpatient settings.
Credits (CFU/ECTS)
60
Total Hours
1500
Programme Duration (months)
12
Application/Enrolment Deadline
15 December 2026
Start Date
January 2027
End Date
January 2028
Maximum Percentage of Permitted Absences
20%

Website //
Language of Instruction Italian, English
Department Department of xxx (Dipartimento di xxx - xxx)
Teaching Contact Dott.ssa Mandoli Giulia Elena - e-mail giulia.mandoli@unisi.it Prof. Matteo Cameli - e-mail matteo.cameli@unisi.it

Agreements and Partnerships

Agreements or Partnerships Agreement
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Admission Requirements

Class	Description	Degree Type
SNT1	Nursing and Midwifery Professions	L
L/SNT1	Nursing and Midwifery Professions (new university system pursuant to d.m. No. 270/2004)	L
SNT3	Technical Health Professions	L
L/SNT3	Technical Health Professions (new university system pursuant to d.m. No. 270/2004)	L
LM-41	Medicine and Surgery (new university system pursuant to d.m. No. 270/2004)	LM
LM/SNT3	Health Professions of Technical Sciences	LM
LM/SNT1	Nursing and Midwifery Sciences	LM
LS46	Medicine and Surgery	LS
SNT LS1	Nursing and Midwifery Sciences	LS
-	Medicine and Surgery	V.O.
-	Medical Radiology Technician	DU

Degree class abbreviations - L: Bachelor's Degree; LS: Specialist Degree; LM: Master's Degree; V.O.: Pre-reform Degree; DU: University Diploma
The qualifications listed above refer to the Italian higher education system. Applicants holding an academic qualification obtained abroad may apply provided that it is deemed comparable, solely for admission purposes, in terms of level, nature, content and academic rights, to the Italian qualification required for admission to the Course.
Direct Clinical Activities Involving Patients No
Possibility of Carrying Out Practical Activities Using Simulation Mannequins Yes
Registration with a Professional Register Yes
Professional Register Professional Register of Medical Practitioners; Nursing Professions; Medical Radiology Technicians; and Technical Health, Rehabilitation and Prevention Professions
Professional Licence Yes
Type of Professional Licence Medical practitioner and, where the degree is not professionally qualifying, the relevant professional licence
Specialisation No
As the Course involves direct clinical activities with patients, applicants must also hold the relevant professional licence and be registered with the competent Italian Professional Register.

Application for Admission or Enrolment

Admission/Enrolment Procedure Direct enrolment on a first-come, first-served basis
Minimum Number of Enrolments 5
Maximum Number of Places Available 60

Enrolment Fees

Total Amount (€)
3000
First Instalment (€)
1500
Second Instalment (€)
1500
Second Instalment Deadline
Friday, 30 April 2027

Programme Structure

Mode of Delivery
Online teaching (synchronous online lessons)
Venue
Cardiovascular Diagnostics Unit, Department of Medical Biotechnologies, University of Siena

Subject Area: ULTRASOUND BASICS AND STANDARD ECHOCARDIOGRAPHIC EXAMINATION
Total Subject Area Credits: 6
Subject Area Coordinators: Cameli Matteo - Focardi Marta

Learning Activity: NORMAL ECHOCARDIOGRAPHIC SCAN: STANDARD VIEWS AND NORMALITY RANGES

Credits (CFU/ECTS): 2
Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES
Learning Activity: HOW TO DO ECHOCARDIOGRAPHY WITH WWIRELESS HANDHELD ULTRASOUND

Credits (CFU/ECTS): 1
Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES
Learning Activity: ECHOCARDIOGRAPHIC LABORATORY: HOW TO ORGANIZE AND MANAGE

Credits (CFU/ECTS): 1
Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: ULTRASOUND BASICS AND ECHOGRAPHIC PROBES

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: HOW TO REPORT AN ECHOCARDIOGRAPHIC EXAMINATION

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Subject Area: CARDIOVASCULAR ANATOMY AND PHYSIOLOGY

Total Subject Area Credits: 4

Subject Area Coordinators: Galzerano Giuseppe - Pastore Maria Concetta

Learning Activity: VASCULAR ANATOMY AND PHYSIOLOGY

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: PULMONARY ANATOMY AND CARDIO-PULMONARY COUPLING

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: CARDIAC AND CORONARY ANATOMY: BACK TO BASIC

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: PRINCIPLES OF VENTRICULAR AND HEART VALVE PHYSIOLOGY

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Subject Area: ECHOCARDIOGRAPHIC ASSESSMENT OF CARDIOMYOPATHIES

Total Subject Area Credits: 11

Subject Area Coordinators: Cameli Paolo - Cavigli Luna - D'Ascenzi Flavio

Learning Activity: HOW TO DIFFERENTIATE DILATED CARDIOMYOPATHY PHENOTYPES

Credits (CFU/ECTS): 2

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: HOW TO DIFFERENTIATE HYPERTROPHIC CARDIOMYOPATHY PHENOTYPES

Credits (CFU/ECTS): 2

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: LEFT VENTRICULAR ADVANCED ASSESSMENT BY SPECKLE TRACKING
ECHOCARDIOGRAPHY

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: ECHOCARDIOGRAPHIC ASSESSMENT OF THE NEWBORN AND THE CHILD AND CONGENITAL CARDIOMYOPATHIES

Credits (CFU/ECTS): 2

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: LUNG ULTRASOUND: BASICS AND CLINICAL APPLICATIONS IN CARDIOMYOPATHIES

Credits (CFU/ECTS): 2

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: ECHOCARDIOGRAPHY IN THE ATHLETE'S HEART

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: LEFT VENTRICULAR ECHOCARDIOGRAPHIC ASSESSMENT: DIMENSIONAL AND FUNCTIONAL EVALUATION

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Subject Area: ACUTE AND CHRONIC ISCHEMIC CARDIOMYOPATHY

Total Subject Area Credits: 6

Subject Area Coordinators: Cameli Matteo - Focardi Marta

Learning Activity: STRESS ECHOCARDIOGRAPHY

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: ECHOCARDIOGRAPHY IN CHRONIC ISCHEMIC CARDIOMYOPATHY

Credits (CFU/ECTS): 2

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: ECHOCARDIOGRAPHY IN ACUTE MYOCARDIAL INFARCTION

Credits (CFU/ECTS): 2

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: LUNG ULTRASOUND IN THE ACUTE SETTING

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Subject Area: HEART VALVE DISEASES AND VALVULAR CARDIOMYOPATHIES

Total Subject Area Credits: 10

Subject Area Coordinators: Lisi Matteo - Mandoli Giulia Elena

Learning Activity: ECHOCARDIOGRAPHY IN COMBINED AND MIXED HEART VALVE DISEASES

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: ECHOCARDIOGRAPHY IN PROSTETIC VALVES

Credits (CFU/ECTS): 2

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: TRANSESOPHAGEAL ECHOCARDIOGRAPHY

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: AORTIC VALVE: STENOSIS AND REGURGITATION

Credits (CFU/ECTS): 2

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: MITRAL VALVE: PRIMARY AND SECONDARY REGURGITATION AND STENOSIS

Credits (CFU/ECTS): 2

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: TRICUSPID AND PULMONARY VALVES

Credits (CFU/ECTS): 2

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Subject Area: VASCULAR ULTRASOUND

Total Subject Area Credits: 4

Subject Area Coordinators: Galzerano Giuseppe - Pastore Maria Concetta

Learning Activity: CAROTID ULTRASOUND

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: PERIPHERAL ARTERIAL DOPPLER ULTRASOUND

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: PERIPHERAL VENOUS DOPPLER ULTRASOUND

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Learning Activity: DOPPLER ULTRASOUND: TIPS AND TRICKS

Credits (CFU/ECTS): 1

Italian Scientific-Disciplinary Sector – SSD: MED/11 – CARDIOVASCULAR DISEASES

Internship/Placement

Internship

Internship/Placement Activities
Attendance at the outpatient clinics of the Cardiovascular Diagnostics and Clinical and Surgical Cardiology Units (UTIC), University of Siena (AOUS Le Scotte)
Internship/Placement Venue
Cardiology Unit, AOUS
Credits Awarded for the Internship/Placement
14
Internship/Placement Hours
350
Internship/Placement Completion Date
December 2027
Internship/Placement Supervisors:
Cameli Matteo - Mandoli Giulia Elena

Intermediate Assessment Methods
Oral examination
Final Assessment Method
Dissertation or final project; oral examination aimed at assessing the knowledge acquired
Credits Awarded for the Final Assessment
5

Governing Bodies

Teaching Board
Body composed of all Area Coordinators
Executive Board
Yes