



## PHMD2M - Introduction

### Introduction

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The Master of Medical Physics is a joint programme offered by UCLouvain and KU Leuven : <https://www.kuleuven.be/programmes/master-medical-physics>

The Master in Medical Physics prepares you to work as a radiation physicist in a hospital environment, in the medical industry, government organizations or in a research institution. A further one-year postgraduate program, consisting largely of an internship, provides access to the certificate of "expert in medical radiation physics".

#### Your profile

- You have solid bases in Physics and Mathematics
- You are considering a career in Medical Physics, either in an hospital, in a government agency, in the industry or in a research institute.

#### Your future job

- Hospital physicist. The access to the profession is given by FANC (Federal Agency of Nuclear Control) after one year of stage (only partially included in this master)
- Physics control expert in an industry or in a government agency
- Research in Medical Physics
- Industry : Instrumentation development, construction and control of medical equipment

#### Your programme

The study program of 120 ECTS credits offers you :

- a balance between classroom teaching and individual study,
- a challenging research component (via the master's thesis),
- a solid practical experience (via 10 weeks of internship).

In this program, you learn about the relevant nuclear physics and nuclear chemistry aspects for a medical physicist. You also become familiar with the structure and functioning of the human body, as well as with the biological effects and health risks and safety issues related with ionising radiation. You further get acquainted with basic techniques and specialised methods in radiotherapy, radiology or nuclear medicine. During the internship in one of the recognised hospitals, you have the opportunity to specialise in one of these fields, being trained with state-of-the-art equipment for Medical Physics.



				Year	
				1	2
○ LPHYS2102	Ionizing Radiation Detection and Nuclear Instrumentation	Eduardo Cortina Gil	EN [q1+q2] [26h+26h] [6 Credits]	x	
○ LPHMD2357	Computational and Numerical Methods for Medical Physics	John Lee Edmond Sterpin	EN [q1] [24h+10h] [4 Credits]	x	

○ Nuclear and Radiochemistry (3 credits)

Choose a course from

⊗ LPHYS2504	Use, management and control of radioelements	Pascal Froment	EN [q2] [22.5h] [3 Credits]		x
⊗ EPHMD2393	Nuclear and Radiochemistry		EN [q2] [18h] [3 Credits]		x

○ Medical oriented courses

From 20 to 23credit(s)

○ WRDTH2331B					
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EN [q2] [18h] [3 Credits]

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○ MBDLHS331B

**o Quality Assurances and Special Techniques (3 credits)**

Choose a course from

⊗ EPHMD2372	Quality Assurance and Special Techniques in Radiology		EN [q1] [14h] [3 Credits]		X
⊗ LPHMD2373	Quality Assurance and Special Techniques in Nuclear Medicine		EN [q2] [22h] [3 Credits]		X
⊗ WRDTH3161	Quality assurance and special techniques in radiotherapy	Edmond Sterpin	EN [q2] [20h] [3 Credits]		X

**o Safety and Ethics**

From 13 to 17credit(s)

○ WRDTH3120	Fundamental of dosimetry	Edmond Sterpin	EN [q1] [20h] [3 Credits]		X
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**o Radiation protection**

Choose between the UCLouvain module and the KU Leuven module

⊗ Radiation protection (KU Leuven) (4 credits)

○ EPHMD2397	Radiation Protection		EN [q1+q2] [18h] [4 Credits]		X
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⊗ Radiation protection (UCLouvain) (8 credits)

○ WRPR2001	Notions de base de radioprotection	Pascal Carlier François Jamar (coord.) Renaud Lhommel	FR [q1] [10h+5h] [2 Credits]		X
○ WRPR2002	Compléments de radioprotection	Dana Ioana Dumitriu Olivier Gheysens François Jamar (coord.)	FR [q2] [20h+10h] [3 Credits]		X
○ WRPR3010	Questions spéciales de radioprotection	Nathalie De Patoul Dana Ioana Dumitriu Damien Dumont Olivier Gheysens François Jamar (coord.) Renaud Lhommel Sébastien Lichtherte Edmond Sterpin Aude Vaandering	FR [q2] [40h] [3 Credits]		X

**o Philosophy, Sustainability and Ethics (6 credits)**

Choose between the UCLouvain module and the KU Leuven module

⊗ Philosophy, Sustainability and Ethics (KU Leuven) (6 credits)

○ EPHMD2354	Science and Sustainability: a socio-ecological approach		EN [q1] [24h] [3 Credits]		X
○ EPHMD2379	Ethics and Law in Biomedical Research		EN [q2] [20h] [3 Credits]		X

⊗ Philosophy, Sustainability and Ethics (UCLouvain) (6 credits)

○ WFSP2108	Bioethics	Jean-Philippe Cobbaut Alain Loute (coord.)	FR [q2] [30h] [4 Credits]		
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## PROFESSIONAL FOCUS [30.0]

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- Mandatory
- ✘ Optional
- △ Not offered in 2024-2025
- ⊙ Not offered in 2024-2025 but offered the following year
- ⊕ Offered in 2024-2025 but not the following year
- △ ⊕ Not offered in 2024-2025 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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[Click on the course title to see detailed informations \(objectives, methods, evaluation...\)](#)

Year



## PHMD2M - Information

### Access Requirements

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- Applicants who have obtained a previous university degree taught in English in **Australia, English-speaking Canada, Ireland, New Zealand, the United Kingdom and the United States of America**. Their diploma and transcripts suffice, provided they confirm that the entire university study was completely taught in English in one of the previous countries.
- Applicants who have obtained a Belgian diploma.

Absolutely no other diplomas will be accepted as evidence even if the applicant has followed an exclusively English-taught programme.

## University Bachelors

Diploma	Special Requirements	Access	Remarks
<b>UCLouvain Bachelors</b>			
		Direct access	
		<a href="#">Access based on application</a>	
		<a href="#">Access based on application</a>	
		<a href="#">Access based on application</a>	
<b>Others Bachelors of the French speaking Community of Belgium</b>			
		<a href="#">Access based on application</a>	
		<a href="#">Access based on application</a>	
<b>Bachelors of the Dutch speaking Community of Belgium</b>			
		Direct access	
		<a href="#">Access based on application</a>	
		<a href="#">Access based on application</a>	
		<a href="#">Access based on application</a>	
<b>Foreign Bachelors</b>			

## Non university Bachelors

> Find out more about [links](#) to the university

## Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
<b>"Licenciés"</b>			
<b>Masters</b>			
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## Access based on validation of professional experience

> It is possible, under certain conditions, to use one's personal and professional experience to enter a university course without having the required qualifications. However, validation of prior experience does not automatically apply to all courses. Find out more about [Validation of priori experience](#).

## Access based on application

Access based on application : access may be granted either directly or on the condition of completing additional courses of a maximum of 60 ECTS credits, or refused.

## Admission and Enrolment Procedures for general registration

## Teaching method

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The Master of Medical Physics is a joint program of UCLouvain and KU Leuven. By joining efforts, the two universities offer a multidisciplinary and complete program in Medical Physics. The lectures are given by professors and professionals with a large experience in their respective fields.

KU Leuven and UCLouvain have a large experience in research in the fields of Sub-Atomic and Medical physics. The researchers of both institutions work in collaboration with international institutions (CERN, GANIL, PSI, IAEA, ...) and with a large number of hospitals and industries across the world.

Together with their respective hospitals UZ Leuven (University Hospital Leuven) and Cliniques universitaires Saint-Luc (at Woluwe),

