

At Louvain-la-Neuve - 60 credits - 1 year - Day schedule - In EnglishDissertation/Graduation Project : **YES** - Internship : **NO**Activities in English: **YES** - Activities in other languages : **YES**Activities on other sites : **YES**Main study domain : **Sciences de l'ingénieur et technologie**Organized by: **Louvain School of Engineering (EPL)**Programme acronym: **NANO2MC** - Francophone Certification Framework: 7**Table of contents**

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NANO2MC - Introduction

Introduction

Introduction

The programme trains students in the multidisciplinary aspects of nanotechnology and allows them to specialise in one of the following areas:

- nanoelectronics and quantum devices (organised by UCLouvain)
- nanostructures and interfaces (organised by ULB),
- chemistry and physics of nanomaterials (organised by ULiège),
- nanomaterials and surfaces (organised by UMons),
- electronic and optical properties of nanomaterials and interfaces (organised by UNamur).

The Advanced Master in Nanotechnology is an inter-university. The Université catholique de Louvain is co-certifying this Master's degree with the Université de Namur, the Université libre de Bruxelles, the University of Liège and the Université de Mons. UCLouvain is the reference institution and is responsible for the administrative management of the program (administration, registration, etc.).

Your profile

This programme is accessible to:

- holders of a master's degree (120) in engineering sciences;
- holders of a master's degree (120) in agronomic sciences and bioengineering, sciences, biomedical and pharmaceutical sciences, as well as holders of the academic degree of master's in business engineering: upon application for admission;
- holders of Belgian and foreign second-cycle degrees: upon application.

Your programme

The training programme is composed of a minimum of 60 credits.

This programme includes:

- a common core of 30 credits including research (thesis) done in the laboratory of one of the five institutions organising the master (27 credits), transversal seminars and a personal work (3 credits);
- a specialisation track (8 to 20 credits);
- options in the form of elective courses (10 to 22 credits).

NANO2MC - Teaching profile

Learning outcomes

The Advanced Master in Nanotechnology offers holders of a basic second cycle degree complementary and/or advanced second cycle training in the fields of nanoscience and nanotechnology. It is intended for, on one hand, those who do not have any training in this field and who wish to specialise in it, or on the other hand, for those who have already taken an option in this field during their master's and who wish to further their training with a specialisation in another area of nanotechnology, e.g. an electrical engineer wanting to further his/her training in nano-biotechnology.

The specialisation master's programme in nanotechnology allows you to specialise in one of the five following sectors, each sector being organised in one of the partner institutions:

- nanoelectronics and quantum devices (UCLouvain),
- nanostructures and nanointerfaces (ULB),
- chemistry and physics of nanomaterials (ULiège),
- nanomaterials and surfaces (UMONS),
- optical and electronic properties of nanomaterials and interfaces (UNamur).

During their one-year programme, students are introduced to the key approaches used in the field and are made aware of the multidisciplinary nature of nanotechnology. They gain knowledge of fundamental phenomena at the nanoscale, nanofabrication or the synthesis of nanostructures, the characterisation of nanostructures, as well as nanoscale modelling and numerical simulation.

Additionally, students are made aware of the societal impacts of nanotechnology through cross-cutting seminars on ethics, economic aspects, applications of nanotechnology, and the toxicities of nanomaterials, among other topics.

A research project is conducted in one of the partner universities' laboratories (UNamur, UCLouvain, ULB, UMONS, or ULg) that is active in the field of nanotechnology.

The Master's degree in Nanotechnology primarily prepares students for research and development training, particularly doctoral research. Most of the faculty involved in the master's programme are also members of the thematic doctoral school MAIN (Materials, Interfaces, and Nanostructures Science and Engineering), which can accommodate students wishing to pursue a PhD. This programme also offers perspectives in both national and international areas of expertise, including technological sectors (biomedical, biotechnology, chemistry, electronics, materials, etc.).

On successful completion of this programme, each student is able to :

1. Complete a multidisciplinary applied research project involving the design and manufacture of a functional object measuring between 1 and 100 nm, and in particular be able to apply at least two of the following four skills;
 - 1.1. Use of fundamental concepts at the nanoscopic scale to design objects and materials with new properties.
 - 1.2. Synthesis of nanomaterials or manufacture of functional nanostructures in the laboratory.
 - 1.3. Characterisation of nanostructures to determine their structure and/or functional properties.
 - 1.4. Numerical modeling or simulation at the nanoscopic scale, using unconventional tools, to predict the properties of the object or material.
2. Apply the complete research process to the development of a functional object in one of the following fields: nanophysics, nanochemistry, nanoelectronics, nanomaterials, nanobiotechnology.

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3. Assess the impact of nanotechnologies on the environment, health, economic development, and employment.

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4. Organise research work in a laboratory team to carry it out successfully.
 - 4.1. Formulate the specifications for the nanomaterial or nanodevice.
 - 4.2. Document and summarise the current state of knowledge in the field of nanotechnology research.
 - 4.3. Prepare a summary report explaining the new properties of the object or material and its field of application.
 - 4.4. Communicate the results of your research orally and in writing (in the form of a scientific article) to a team of experts in the field of nanotechnology.

Programme structure

The programme comprises a minimum of 60 credits in each area of specialisation.

It includes:

- a core curriculum of 27 credits consisting of :
 - end-of-study research work (dissertation) carried out in a laboratory of one of the five institutions co-granting the master's degree, in principle in the institution organising the chosen specialised track (25 credits),
 - transversal seminars and personal work (2 credits): students follow seminars common to the different sectors and carry out work on transversal themes such as ethics, economic aspects, applications of nanotechnologies, toxicity nanomaterials; these seminars are organised in the form of thematic days in turn by the partner institutions of the program; cross-disciplinary seminars are compulsory for all sectors and bring together all master's students;

- training in one of the five specialisation track (from 15 to 25 credits) consisting of 4 to 6 compulsory teaching units provided in the institution organising the chosen specialised sector;
- teaching units to choose from so as to constitute an individual annual program of at least 60 credits; these elective teaching units will be selected from the teaching units identified as completing the chosen specialised sector; at least one unit will be borrowed from an institution different from that organising the chosen specialised sector.

Within one of the specialisation tracks, the student, with the assistance of an advisor, will create a coherent and tailored individual annual programme based on their acquired skills. With the advisor's approval, it is possible to select elective units outside of the chosen track or even outside of the master's programme.

If, during their previous academic studies, the student has already taken a course offered or a course deemed equivalent, they cannot include that course in their training programme.

The student will include in their annual program teaching units borrowed from at least two different co-degree institutions.

Regardless of the chosen specialisation track, the student's annual programme will total a minimum of 60 credits. It may reach up to 75 credits if an intensive upgrade is deemed necessary by the programme management committee based on the student's background (refer to admission conditions).

The student's annual programme, as established, will be submitted for approval to the master's programme management committee.

NANO2MC Programme

Detailed programme by subject

CORE COURSES [60.0]

The program of this master's degree is inter-university. In the lists of teaching units below, the codes of teaching units organised by UCLouvain are preceded by the letter L, those organised by another institution have a code preceded by the letter E. By clicking on the title of the course, you will arrive at its description sheet, which will give you detailed information.

- Mandatory
- ⌘ Optional
- △ Not offered in 2026-2027
- ⊙ Not offered in 2026-2027 but offered the following year
- ⊕ Offered in 2026-2027 but not the following year
- △ ⊕ Not offered in 2026-2027 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, ...)

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

○ Core curriculum for the Advanced Master in Nanotechnology

Students carry out research work in a laboratory at one of the six institutions organising the Master's programme. They attend seminars common to the different courses and carry out work on one of the cross-disciplinary themes such as ethics, socio-economic aspects, applications of nanotechnologies and the toxicity of nanomaterials.




○ L NANO2991	Seminars on the Ethical and Socioeconomic Aspects of Nanotechnologies	Benoît Hackens	EN [q2] [15h+15h] [2 Credits] 🌐 > French-friendly
○ L NANO2990	Master Thesis		EN [q1+q2] [] [25 Credits] 🌐

○ Specialisation tracks within the Advanced Master in Nanotechnology

Students select compulsory courses from one of the five specialisation tracks.

⌘ Specialisation track in nanoelectronics and quantum devices







○ LELEC2330	Opto-electronic and power devices	Denis Flandre Laurent Francis	EN [q1] [30h+30h] [5 Credits] 🌐 > French-friendly
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○ LELEC2710	Nanoelectronics	Vincent Bayot Pascal Gehring Benoît Hackens	EN [q1] [30h+30h] [5 Credits]  > French-friendly
○ LMAPR2015	Physics of Nanostructures	Flavio Abreu Araujo Jean-Christophe Charlier Xavier Gonze	EN [q1] [37.5h+22.5h] [5 Credits]  > French-friendly
○ LELEC2560	Micro and Nanofabrication Techniques	Laurent Francis Benoît Hackens Jean-Pierre Raskin	EN [q2] [30h+30h] [5 Credits]  > French-friendly






⊗ Specialisation track in nanostructures and nanointerfaces

○ ENANO2805	Nanophysics		EN [q1] [24h+60h] [5 Credits] 
○ ENANO2423	Physics of interfaces		EN [q1] [24h+24h] [5 Credits] 
○ ENANO2410	Molecular and Biomolecular Engineering		EN [q2] [36h+36h] [5 Credits] 
○ ENANO2607	Surface Analysis of Materials		EN [q2] [24h+12h] [5 Credits] 

⊗ Specialisation track in chemistry and physics of nanomaterials

○ ENANO2612	Nanofabrication: principles and techniques		EN [q2] [25h+20h] [4 Credits] 
○ ENANO2702	Nanomaterials: synthesis, properties and applications		EN [q1] [25h] [4 Credits] 
○ ENANO2706	Ingénierie des nanomatériaux et matériaux divisés		EN [q1] [15h+15h] [3 Credits] 
○ ENANO2505	Physics of Nanomaterials		EN [q2] [20h+10h] [4 Credits] 
○ ENANO2418	Introduction to the Physical Chemistry of Nanomaterials		EN [q2] [20h+10h] [3 Credits] 
○ ENANO2822	Physics and chemistry of materials: complements		EN [q1] [5h+15h] [2 Credits] 

⊗ Specialisation track in nanomaterials and surfaces





○ ENANO2502	Molecular Modelling in Chemistry		EN [q1] [15h+15h] [3 Credits] 
○ ENANO2424	Chemistry of surfaces and interfaces		EN [q1] [30h+30h] [5 Credits] 
○ ENANO2425	Physics of surfaces and interfaces		EN [q1] [30h+30h] [5 Credits] 
○ ENANO2426	Electron spectroscopy for the characterisation of nanomaterials		EN [q1] [15h+15h] [3 Credits] 
○ ENANO2818	Macromolecular physics		EN [q2] [30h] [5 Credits] 

⊗ Specialisation track in the optical and electronic properties of nanomaterials and interfaces

Students will take at least one 'basic' course in each of the four disciplines listed below (fundamental phenomena, nanofabrication, characterisation of nanostructures, and nanoscale simulation).




○ Course on fundamental phenomena in nanotechnology

Students select one course on fundamental phenomena from the six following courses:

⊗ ENANO2401	Intermolecular interactions		EN [q2] [12h] [4 Credits] 
⊗ ENANO2812	Nanomaterials and applications of solid state physics		EN [q2] [45h+15h] [6 Credits] 
⊗ ENANO2813	Radiation-matter interaction		EN [q1] [30h+30h] [6 Credits] 
⊗ ENANO2814	Physique des lasers, optique non-linéaire et quantique		EN [q1] [45h+15h] [6 Credits] 
⊗ ENANO2816	Photonique théorique et numérique		EN [q2] [30h+15h] [3 Credits] 
⊗ ENANO2817	Plasmonique et applications		EN [q2] [15h+15h] [3 Credits] 







○ Nanofabrication course

Students select one nanofabrication course from the two following courses:

⊗ ENANO2419	Organic photochemistry		EN [q2] [12h] [4 Credits]  
⊗ ENANO2707	Synthèse des matériaux		EN [q1] [30h] [3 Credits] 

○ Nanocaracterisation course

Students select one nanocaracterisation course from the four following courses:

⊗ ENANO2608	Optique expérimentale des Surfaces et des Nanostructures		EN [q1] [22h] [3 Credits]  
⊗ ENANO2610	Microscopy applied to materials chemistry		EN [q2] [12h] [4 Credits] 
⊗ ENANO2603	Microscopie électronique		EN [q1] [22h+8h] [3 Credits]  
⊗ ENANO2611	Techniques de caractérisation des surfaces et interfaces		EN [q1] [30h] [3 Credits] 

o Nanoscale simulation course

Students select one nanoscale simulation course from the two following courses:

ENANO2501	Simulation en Physique des Matériaux		EN [q1] [15h+15h] [3 Credits] 🌐
ENANO2803	Advanced Theoretical Chemistry (UNamur, Cours SCHIM102)		EN [q1] [36h+24h] [6 Credits] 🌐

o Elective courses for the Advanced Master in Nanotechnology

Students complete their annual programme with a minimum of three optional courses from among the courses listed below or courses from other specialisation track.

The courses chosen must be related to the subject of the selected specialisation track.

At least one course must be taken at an institution other than the one offering the chosen specialisation track.

The annual programme must comprise a minimum of 60 credits and a maximum of 75 credits.

o Elective courses in the specialisation track in nanoelectronics and quantum devices

ENANO2409	Introduction to nanotechnologies		EN [q1] [15h] [3 Credits] 🌐
ENANO2411	Soft microrobotics		EN [q1+q2] [24h+48h] [5 Credits] 🌐
ENANO2415	Physics of magnetic materials		EN [q2] [20h+10h] [4 Credits] 🌐
LELEC2550	Special electronic devices	Vincent Bayot	EN [q1] [30h+0h] [5 Credits] 🌐 > French-friendly
LELEC2895	Design of micro and nanosystems	Laurent Francis	EN [q1] [30h+30h] [5 Credits] ⚠️ 🌐 > French-friendly
LMAPR2012	Polymers for advanced technologies	Sophie Demoustier Karine Glinel Jean-François Gohy	EN [q2] [45h+15h] [5 Credits] 🌐 > French-friendly
LMAPR2471	Transport phenomena in solids and nanostructures	Flavio Abreu Araujo Jean-Christophe Charlier Benoît Hackens	EN [q2] [30h+30h] [5 Credits] 🌐 > French-friendly
LPHYS2245	Lasers physics	Clément Lauzin	EN [q2] [22.5h+7.5h] [5 Credits] 🌐 > French-friendly
LELEC2541	Advanced Transistors	Denis Flandre Benoît Hackens Jean-Pierre Raskin	EN [q2] [30h+22.5h] [5 Credits] 🌐 > French-friendly
LMAPR2451	Atomistic and nanoscopic simulations	Jean-Christophe Charlier Xavier Gonze Gian-Marco Rignanese	EN [q2] [30h+30h] [5 Credits] 🌐 > French-friendly
LMAPR2631	Surface Analysis	Arnaud Delcorte Benoît Hackens	EN [q2] [30h+15h] [5 Credits] 🌐 > French-friendly
LPHYS2141	Introduction to quantum optics	Matthieu Génévriez Xavier Urbain	EN [q1] [22.5h+7.5h] [5 Credits] 🌐 > French-friendly
LPHYS2143	Optics and lasers	Clément Lauzin	EN [q1] [22.5h+22.5h] [5 Credits] 🌐 > French-friendly
LPHYS2242	Fundamentals of quantum information	Matthieu Génévriez Sorin Melinte	EN [q2] [30h] [5 Credits] 🌐 > French-friendly
LPHYS2247	Special topics in quantum optics	Matthieu Génévriez	EN [q2] [30h] [5 Credits] 🌐 > French-friendly
ENANO2503	Quantum modelling of materials properties		EN [q1] [20h+10h] [4 Credits] 🌐
ENANO2609	Caractérisation microstructurales des matériaux		EN [q2] [25h] [2 Credits] 🌐
ENANO2808	Nanoelectronics / optoelectronics		EN [q2] [30h+40h] [5 Credits] 🌐
ENANO2810	Physics of functional oxides		EN [q1] [20h+10h] [4 Credits] 🌐
ENANO2606	Microscopie à sonde locale		EN [q1] [15h] [3 Credits] 🌐
ENANO2823	Magnetism and superconductivity		EN [q1] [20h+10h] [4 Credits] 🌐
ENANO2407	Molecular logic		EN [q2] [15h] [2 Credits] 🌐

o Elective courses in the specialisation track in nanostructures and nanointerfaces

ENANO2407	Molecular logic		EN [q2] [15h] [2 Credits] 🌐
ENANO2409	Introduction to nanotechnologies		EN [q1] [15h] [3 Credits] 🌐
ENANO2411	Soft microrobotics		EN [q1+q2] [24h+48h] [5 Credits] 🌐
LBRNA2202	Nano-biotechnologies	Yves Dufrêne (coord.) Andra Dumitru	EN [q2] [30h] [3 Credits] 🌐
LMAPR2451	Atomistic and nanoscopic simulations	Jean-Christophe Charlier Xavier Gonze Gian-Marco Rignanese	EN [q2] [30h+30h] [5 Credits] 🌐 > French-friendly

ENANO2506	Approches computationnelles des états de la matière		FR [q1] [36h+36h] [5 Credits]
ENANO2801	Chimie des Interfaces et nanostructures		FR [q1] [36h+24h] [5 Credits]
ENANO2806	Molecular motors and stochastic processes		EN [q1] [36h+12h] [5 Credits]
ENANO2503	Quantum modelling of materials properties		EN [q1] [20h+10h] [4 Credits]
ENANO2610	Microscopy applied to materials chemistry		EN [q2] [12h] [4 Credits]
ENANO2817	Plasmonique et applications		FR [q2] [15h+15h] [3 Credits]
ENANO2435	Chimie physique macroscopique: de l'auto-assemblage à l'auto-organisation		FR [q1] [36h+24h] [5 Credits]
ENANO2824	Single-molecule approaches in biology and chemistry		EN [q1] [25h] [4 Credits]

O Elective courses in the specialisation track in nanomaterials chemistry and physics

ENANO2409	Introduction to nanotechnologies		FR [q1] [15h] [3 Credits]
ENANO2415	Physics of magnetic materials		EN [q2] [20h+10h] [4 Credits]
LELEC2895	Design of micro and nanosystems	Laurent Francis	EN [q1] [30h+30h] [5 Credits] Δ
LMAPR2012	Polymers for advanced technologies	Sophie Demoustier Karine Glinel Jean-François Gohy	EN [q2] [45h+15h] [5 Credits]
LMAPR2471	Transport phenomena in solids and nanostructures	Flavio Abreu Araujo Jean-Christophe Charlier Benoît Hackens	EN [q2] [30h+30h] [5 Credits]
LMAPR2451	Atomistic and nanoscopic simulations	Jean-Christophe Charlier Xavier Gonze Gian-Marco Rignanese	EN [q2] [30h+30h] [5 Credits]
ENANO2804	Nanochemistry and Nanotechnology		EN [q2] [24h+24h] [4 Credits]
ENANO2503	Quantum modelling of materials properties		EN [q1] [20h+10h] [4 Credits]
ENANO2609	Caractérisation microstructurales des matériaux		FR [q2] [25h] [2 Credits]
ENANO2808	Nanoelectronics / optoelectronics		EN [q2] [30h+40h] [5 Credits]
ENANO2810	Physics of functional oxides		EN [q1] [20h+10h] [4 Credits]
ENANO2610	Microscopy applied to materials chemistry		EN [q2] [12h] [4 Credits]
ENANO2812	Nanomaterials and applications of solid state physics		FR [q2] [45h+15h] [6 Credits]
ENANO2817	Plasmonique et applications		FR [q2] [15h+15h] [3 Credits]
ENANO2823	Magnetism and superconductivity		EN [q1] [20h+10h] [4 Credits]
ENANO2824	Single-molecule approaches in biology and chemistry		EN [q1] [25h] [4 Credits]

O Elective courses in the specialisation track in nanomaterials and surfaces

ENANO2409	Introduction to nanotechnologies		FR [q1] [15h] [3 Credits]
ENANO2421	Propriétés thermiques des polymères		FR [q1] [15h+4h] [3 Credits]
ENANO2701	Biocompatible and nanostructured materials		EN [q2] [36h+24h] [5 Credits]
ENANO2804	Nanochemistry and Nanotechnology		EN [q2] [24h+24h] [4 Credits]
ENANO2428	Fabrication Additive et règles de conception		FR [q2] [24h+36h] [6 Credits]
ENANO2429	Quantum chemistry of materials science		EN [q1] [15h+15h] [3 Credits]
ENANO2430	Electronic structure of functional materials		EN [q1] [15h] [3 Credits]
ENANO2431	Technologies plasma pour le traitement des matériaux		FR [q1] [20h+15h] [3 Credits]
ENANO2432	Matériaux et énergie		FR [q2] [30h+15h] [6 Credits]
ENANO2610	Microscopy applied to materials chemistry		EN [q2] [12h] [4 Credits]
ENANO2812	Nanomaterials and applications of solid state physics		FR [q2] [45h+15h] [6 Credits]

O Elective courses in the specialisation track in the optical and electronic properties of nanomaterials and interfaces

ENANO2402	Solid State Properties of Polymers		FR [q2] [24h+24h] [5 Credits]
ENANO2407	Molecular logic		EN [q2] [15h] [2 Credits]
ENANO2414	Introduction à la matière molle et aux systèmes complexes		FR [q1] [30h] [4 Credits]
ENANO2415	Physics of magnetic materials		EN [q2] [20h+10h] [4 Credits]
ENANO2416	Nanotechnology		EN [q2] [12h] [4 Credits]
LMAPR2012	Polymers for advanced technologies	Sophie Demoustier Karine Glinel Jean-François Gohy	EN [q2] [45h+15h] [5 Credits]

⊗ LPHYS2245	Lasers physics	Clément Lauzin	EN [q2] [22.5h+7.5h] [5 Credits] 🌐 > French-friendly
⊗ ENANO2420	Physics of materials for energy		EN [q1] [20h+15h] [4 Credits] 🌐
⊗ ENANO2421	Propriétés thermiques des polymères		FR [q1] [15h+4h] [3 Credits] 🌐
⊗ LBRNA2102	Material surface characterisation	David Alsteens (coord.) Christine Dupont Eric Gaigneaux	EN [q2] [45h] [4 Credits] 🌐 > French-friendly
⊗ LMAPR2631	Surface Analysis	Arnaud Delcorte Benoît Hackens	EN [q2] [30h+15h] [5 Credits] 🌐 > French-friendly
⊗ ENANO2801	Chimie des Interfaces et nanostructures		FR [q1] [36h+24h] [5 Credits] 🌐
⊗ ENANO2806	Molecular motors and stochastic processes		EN [q1] [36h+12h] [5 Credits] 🌐
⊗ ENANO2808	Nanoelectronics / optoelectronics		EN [q2] [30h+40h] [5 Credits] 🌐
⊗ ENANO2606	Microscopie à sonde locale		FR [q1] [15h] [3 Credits] 🌐
⊗ ENANO2507	Complément de Chimie quantique		FR [q2] [12h] [4 Credits] 🌐
⊗ ENANO2802	Théorie quantique de l'état solide organique		FR [q1] [12h] [4 Credits] 🌐
⊗ ENANO2811	Introduction aux phénomènes relativistes en chimie		FR [q2] [12h] [4 Credits] 🌐
⊗ ENANO2815	Matter and energy		EN [q1] [24h] [4 Credits] 🌐
⊗ ENANO2433	Scientific programming for chemists		EN [q2] [12h] [4 Credits] 🌐
⊗ ENANO2434	Innovative technologies in chemistry		EN [q1] [12h] [4 Credits] 🌐

The programme's courses and learning outcomes

For each UCLouvain training programme, a [reference framework of learning outcomes](#) specifies the the skills expected of every graduate on completion of the programme. Course unit descriptions specify targeted learning outcomes, as well as the unit's contribution to reference framework of learning outcomes.

NANO2MC - Information

Access Requirements

In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail.

Decree of 7 November 2013 defining the landscape of higher education and the academic organization of studies.

The admission requirements must be met prior to enrolment in the University.

Unless explicitly mentioned, the bachelor's, master's and licentiate degrees listed on this page are to be understood as those issued by an institution of the French, Flemish or German-speaking Community, or by the Royal Military Academy.

In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail.

SUMMARY

- [General access requirements](#)
- [Specific access requirements](#)

General access requirements

Translated from https://www.gallilex.cfwb.be/fr/leg_res_01.php?ncda=39681&referant=l02

Art. 112. of the "Décret définissant le paysage de l'enseignement supérieur et l'organisation académique des études" :

§ 1. In accordance with the general requirements established by the academic authorities, students who have:

1. a master's degree;
2. an academic degree similar to the one mentioned in the preceding paragraph awarded by a higher education institution in the Flemish Community or the German-speaking Community, or by the Royal Military Academy, by virtue of a decision of the academic authorities and in accordance with any additional requirements they may establish;
3. a foreign academic degree deemed equivalent to the one mentioned in paragraph 1, in accordance with this Decree, a European directive, an international convention or other legislation, in accordance with the same requirements.

The additional admission requirements referred to in paragraph 2 are intended to ensure that the student has acquired the knowledge and skills required for the studies in question. When the additional admission requirements consist of one or more additional course units, these may not represent more than 60 additional credits for the student, taking into account all the credits that he or she may otherwise use for admission. These course units are part of the student's study programme.

§ 2. In accordance with the general requirements established by the academic authorities, a student who holds a title, diploma, degree or certificate of higher education, in the French Community or outside it, which does not grant him or her eligibility for admission to a specialised master's course by virtue of the preceding paragraph, may nevertheless be admitted by the jury of the course in question, in accordance with the additional requirements that it establishes, if the totality of the higher education that he or she has completed or the expertise that he or she has acquired is valued by the jury to be at least 240 credits.

§ 3. By way of derogation from these general requirements, the academic authorities may also admit to a specialised master's course holders of a title, diploma, degree or certificate awarded outside the French Community which, in that system of origin, grants direct eligibility for postgraduate studies, even if the studies sanctioned by these credentials are not organised into distinct degree courses or within a time period of at least five years.

Specific access requirements

Specific Admission Requirements

As several options in this programme are taught in English, no prior proof of proficiency in French is required. However, students with no knowledge of French may be refused registration if they choose options not taught in English. Students must state their level of proficiency in French in their application.

In accordance with the decree of 7 November 2013 defining higher education, promoting its integration into the European Higher Education Area and refinancing universities, the general admission conditions are set out on the "Admission conditions - Specialised Masters: <https://uclouvain.be/en/study/inscriptions/advanced-master-s-degree.html> web page.

The specific admission conditions to this program are as follows :

- 1) Access to the Advanced Master in Nanotechnology is unconditional for holders of a Master's degree of at least 120 credits in study area No.19 of the Sciences de l'Ingénieur : Master in Engineering (ir.) awarded by the French-speaking community of Belgium, as well as holders of a similar degree awarded by the Dutch-speaking community of Belgium.
- 2) Access to the Advanced Master in Nanotechnology is conditional for holders of a Master's degree with at least 120 credits in study areas No.18 in Agronomy and Bioengineering, No. 17 in Science, and No. 15 in Biomedicine and Pharmacy, awarded by the French-speaking community of Belgium, as well as the holder of a university degree awarded in the Flemish Community and declared by the

Management Committee to be similar to one of the above-mentioned degrees. The Management Committee decides on the basis of the application submitted by the student.

3) Access to the Advanced Master in Nanotechnology is conditional for holders of a Master's degree 120 other than those listed in 1) and 2), as well as holders of a second cycle foreign degree of at least 300 credits. The enrolment procedure is identical to that in 2).

Applications received will be subject to scrutiny by the program committee with a view to admission. The admission application should contain the following items :

- Motivation letter
- Complete resume
- Copies of the Bachelor and Master's degree or a document listing successful completion of the program
- All transcript of records of the Bachelor and Master studies testifying of the successful valorisation of 300 credits

A selection interview may be organised to make sure that the applicant properly masters the basic concepts needed for the study program.

A maximum of 15 credits of prerequisites may be imposed on candidates covered by points 2) and 3).

Special admission and registration procedures

Students who do not hold a Master's degree in Civil Engineering awarded in the French-speaking Community of Belgium must submit an application for admission to the Master's Management Committee (see above) at the time of their application, which will be assessed by the Master's Management Committee.

Holders of a Master's degree in Civil Engineering as described above obtained at a university other than the Université Catholique de Louvain must contact the Vice-Dean for Admissions at the Ecole Polytechnique de Louvain in order to obtain formal permission to enrol.

Teaching method

The Advanced Master in Nanotechnology is a resolutely multidisciplinary programme, the objective of which is to train students in both theoretical, and experimental and applied approaches in the field of nanotechnology.

By its structure of leaving a very wide choice of courses, this programme allows students to construct a programme to suit them and their personal needs.

A variety of the learning structures and scientific approaches is provided by the inter-university organisation of the programme.

Evaluation

The evaluation methods comply with the [Academic regulations and procedures](#). More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading “Learning outcomes evaluation method”.

The learning activities are evaluated according to the regulations in force at the university (see the study and exams regulations), which include written and oral exams, laboratory tests, individual or group work, public project presentations, and thesis defence.

To calculate the average grade, the results for the teaching unit are adjusted according to their respective credits.

Mobility and/or Internationalisation outlook

To enable non-French-speaking students to access the master's programme, a large part of it will be taught in English.

Most of the teaching staff involved in the Master's programme are affiliated to European networks of excellence (FAME, SINANO, NANOSIL, ...), and international research programmes.

Possible trainings at the end of the programme

With its training and research components, the Advanced Master in Nanotechnology also prepares students for the PhD programme. Most of the teachers involved in the master's are members of the thematic doctoral school MAIN (Science et Ingénierie des Matériaux, des Interfaces et des Nanostructures) which can supervise students wishing to do a PhD.

Contacts

Curriculum Management

Entity

Structure entity

Denomination

(IMCN)

Sector

Acronym

Postal address

SST/IMCN/BSMA

(BSMA)

Sciences and Technology (SST)

BSMA

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Jury

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