

Master's thesis regulations for informatics degrees

Agreement CP.FIB/2022/08/07 of the FIB's Standing Committee on 19 October, which approves the master's thesis regulations for informatics degrees

Vice-dean for Postgraduate studies

MASTER'S THESIS REGULATIONS FOR INFORMATICS DEGREES

Preamble

To be awarded any of the master's degrees taught at the Barcelona School of Informatics (FIB), students must complete a master's thesis. This document sets out the regulations that govern master's theses for the following master's degrees organised by the Barcelona School of Informatics: the master's degree in Informatics Engineering (MEI), the master's degree in Innovation and Research in Informatics (MIRI), the master's degree in Artificial Intelligence (MAI) and the master's degree in Data Science (MDS).

Chapter 1. General regulations

Section 1. General principles

Article 1. Definition and characteristics

A master's thesis is an original, individual piece of work that must be presented and defended before an examination committee. It must consist of a comprehensive project that draws together many of the competencies achieved over the course of the master's degree. Accordingly, the thesis should demonstrate that students are able to apply the knowledge and skills they have acquired.

Article 2. Types

Master's theses may be of the following four types:

- A: Theses completed at the UPC.
- B: Theses completed at a company/institution.
- C: Theses completed on national or international mobility.
- D: Theses completed at a company/institution abroad.

Type A theses

Master's theses of this type are linked to an academic unit (department, research institute, etc.) of the UPC and are proposed by professors or students.

Professors may make their master's thesis proposals public at any time using the established system. Students interested in a specific proposal must contact the professor responsible, who will supervise the thesis if an agreement is reached. Students who make proposals on their own initiative must contact a professor on the master's degree who may be interested in supervising the thesis. If an agreement is reached, this professor will supervise the master's thesis. Both at the time of registration and at the time of the defence, the person who supervises the thesis

must be affiliated with the FIB.

Type B theses

Theses of this type may be completed by students who have an employment contract with a company/institution or are completing a work placement under an educational cooperation agreement. Type B theses are supervised by a person who has an undergraduate degree or a master's degree and who is under contract to the company/institution involved. This person will supervise the master's thesis. In this case, students must find a professor at the School who is willing to act as a tutor for the master's thesis.

Type B master's theses must be defended, at the latest, during the first defence period following the expiry of the employment contract or educational cooperation agreement with the company or institution at which the thesis was carried out.

Type C theses

Master's theses of this type are completed within the framework of student exchange agreements. In this case, theses are governed by the regulations of the host university and supervised and assessed by its professors.

Type D theses

Type D theses are similar to type B but are completed at a company/institution abroad after the signing of an agreement covering this arrangement.

Article 3. Master's thesis registration

Students must register for the master's thesis before enrolling for it. At the latest, they must do so in the semester before the semester in which they enrol for it.

Article 4. Master's thesis enrolment

The period during which enrolment remains valid is determined by the UPC regulations in effect. Students who do not defend their thesis during the period that their master's thesis enrolment remains valid must re-enrol.

Article 5. Supervisors and tutors

Functions of master's thesis supervisors

Master's thesis supervisors are responsible for:

- Advising the student on all matters relating to the development of technical and cross-disciplinary competencies linked to the master's thesis.
- Tracking and monitoring the master's thesis.
- Assessing and validating the corresponding milestones in accordance with the provisions of these regulations.

Master's theses may be co-supervised by two or more people.

Functions of master's thesis tutors

Master's thesis tutors are responsible for:

- Advising supervisors and students to ensure that the master's thesis meets requirements related to these regulations.

- Monitoring the thesis in collaboration with the supervisor.
- Assessing and validating the corresponding milestones with thesis supervisors in accordance with the provisions of these regulations.

Article 6. Master's thesis pathway

6.1 Type C theses

Students who are ready to undertake their master's thesis must enrol for it at the FIB.

When students return from an exchange, they deposit the master's thesis and the mark on the transcript from the university at which the thesis was written is adapted to a scale of 0 to 10 and added to their academic record.

6.2 Type A, B and D theses

Students who are ready to undertake a master's thesis must:

- Register for the master's thesis.
- Enrol for the master's thesis.
- Reach the progress review milestone.
- Defend the thesis in accordance with the assessment regulations set out in these regulations.

The master's thesis supervisor or tutor must assess and validate the progress review and final reports. During this process, they may include any comments they deem appropriate. Once all the necessary validations have been made, the progress review and final reports are available to the members of the examination committee for the master's thesis.

6.3 Withdrawal and changes to the details of the master's thesis

The master's thesis pathway includes two additional actions that students can take in exceptional circumstances.

- *Withdrawal from the master's thesis:* A master's thesis supervisor (or tutor if applicable) or student may apply to withdraw from a master's thesis unilaterally by submitting an application to the vice-dean for Postgraduate Studies. If a thesis supervisor or tutor withdraws, the vice-dean for Postgraduate Studies must ensure that a new supervisor or tutor is assigned if possible, or that the affected student is able to register a new person to fill this role.
- *Changes to thesis details:* Any changes to the details of a master's thesis (title, change of supervisor, specialisation, etc.) must be made by submitting an application by the thesis supervisor (or tutor in specified cases) and the student to the vice-dean for Postgraduate Studies. However, the following restrictions apply:
 - Once a master's thesis has been registered, its classification (type A, B, C or D) may not be changed.
 - The process of modifying thesis details may only be initiated during the progress review milestone by means of the procedure currently in effect.
 - Once the progress review milestone has been successfully completed, students may not request any modification of their thesis details.

The vice-dean for Postgraduate Studies may make exceptions in duly justified cases.

Section 2. Further aspects of assessment

Article 7. Preliminary considerations

Master's theses are assessed comprehensively and assigned a single mark.

In the case of type A, B and D theses, assessment takes place as provided in these regulations. Type C theses are assessed in accordance with the regulations of the host university for the mobility period.

In the case of type C theses, the assessment of the university where the student enrolled for and completed the master's thesis will be accepted. The certificate of marks issued by that university must include the number of ECTS credits the thesis carries and the mark achieved. If the assessment of the master's thesis includes information on cross-disciplinary competencies, this should also be recorded in the academic record. Master's theses of this type must carry the number of ECTS credits stipulated in the specific regulations governing the master's degree. The mark for master's thesis credits is adapted to a scale of 0 to 10 based on the mark certified by the university where the master's thesis was completed. In exceptional cases, when the original mark is not numerical and additional information from the university that awarded it is not available, the master's degree's academic committee may require that the student concerned defend the thesis at the FIB. The examination committee appointed will assess the thesis and award a final mark.

Article 8. Assessment

Assessment of master's theses is carried out at two milestone points: the progress review milestone and the final milestone.

- *Progress review milestone*: The aim of the progress review milestone is to check that students are making satisfactory progress on their thesis and for students to declare their intention to defend their master's thesis in the next defence period. Students must produce a progress review report (see Article 9) and submit it to the thesis supervisor or tutor within the time limits indicated in these regulations.
- *Final milestone*: This step must take place in one of the periods established for defending master's theses. Students must submit their master's thesis (see Article 10). Students must then defend the thesis in a public session before an examination committee. Dates for submission of theses and their public defence will be announced by the School before the start of each semester.

Article 9. Progress review milestone

The progress review milestone is assessed by the thesis supervisor (if there is no tutor for the master's thesis) or otherwise by the tutor for the master's thesis. The student meets the assessor and provides a report on the status of the thesis. This document must include the following sections:

- Fulfilment of the work plan and objectives.
- Adjustments made and justification for these changes.
- Work plan for completing the master's thesis.

The assessor proposes any modifications required to correct deviations and may even consider rejecting the student's report. In this case, a new date must be set to complete the progress review milestone. Once the progress review report has been accepted, the assessor evaluates

the final version via the student's personal area. The assessment must cover the following points:

- Autonomy in carrying out the thesis work.
- Autonomy in writing the thesis.
- The work plan developed and work carried out to date.
- Communication with the thesis supervisor or tutor.

Each of these points is assessed on the following scale: *Unsatisfactory, Satisfactory, Good, Very Good* and *Excellent*. Additional comments may be included as deemed appropriate by the assessor. This assessment may be modified at the final milestone.

The report (or partial thesis) must receive a positive assessment one month before the defence of the master's thesis at the latest. Students may not advance to the final milestone until they have received a positive assessment for this report. If the progress review milestone has been successfully completed, the student must choose a defence period. The report and the assessment made during this milestone are available to the examination committee that assesses the final milestone.

Note that once the progress review milestone has been successfully completed, students may not request any changes to their thesis details (see Article 6).

Article 10. Final milestone

The student submits the thesis. At this point, the thesis supervisor or tutor may modify the assessment made at the progress review milestone based on the same criteria indicated in Article 9. The student must defend the thesis in a public session before an examination committee. The examination committee has access to the thesis supervisor's or tutor's assessment of the student's work on their master's thesis.

The committee jointly assesses the competencies for the master's thesis in numerical terms and assigns a single mark on a scale of 0 to 10. The examination committee must assess the technical competencies according to the assessment rubric in effect in order to facilitate discussion of the assessment and ensure that the assessment criteria are transparent to students. During the assessment process, the examination committee may consider the assessment made by the thesis supervisor or tutor.

When a master's degree includes assessment of cross-disciplinary competencies, the examination committee assesses these competencies in accordance with the specific regulations governing the relevant master's degree.

Exceptionally, in the case of master's theses assigned an overall mark of 10, the examination committee may propose that the student be awarded a distinction. In this case, the examination committee must justify its proposal by reference to the available rubric. Academic committees for master's degrees must designate a committee to review proposals and award distinctions in accordance with current UPC regulations.

Section 3. Additional points regarding the final milestone

Article 11. Examination committee for the final milestone

Type A, B and D theses are assessed by an examination committee appointed by the dean at the proposal of the academic committee of the master's degree. Examination committees are

appointed, and the list of examiners made public, at least 15 days before the defence date. Examination committees are made up of three FIB professors, who serve as chair, secretary and committee member. At least one member of the examination committee must have assigned teaching duties on the master's programme in the current academic year.

Members of the examination committee may not simultaneously act as supervisors or tutors for any of the master's theses they must assess. Examination committees must have mechanisms for appointing substitute members to act in situations of conflict or force majeure.

Article 12. Format and content of the thesis

Students are not required to submit a printed copy of the thesis, but they must complete the protocol for submission within the time limits established in these regulations. A master's thesis must be an original and unique piece of work.

The following information must appear on the cover (front page):

- A. Title
- B. Author
- C. Thesis defence date
- D. Thesis supervisor and the department, institution or company to which they are affiliated
- E. Official name of the master's degree
- F. BARCELONA SCHOOL OF INFORMATICS (FIB)
- G. UNIVERSITAT POLITÈCNICA DE CATALUNYA (UPC)-BarcelonaTech

In Section D, if the master's thesis has more than one supervisor, the details of all the supervisors must be added on separate lines in the same format. Likewise, if there is a tutor for the master's thesis, their details must be added on a line below in the same format.

In the case of type B and D theses, students must add an H section that clearly indicates the school, institution or company where the thesis was completed.

There is no set format for theses. However, theses must start with an abstract no longer than 1,000 words. It is recommended that theses include the following sections:

- Cover
- Abstract
- Table of contents
- Introduction, motivation and objectives
- State of the art
- Specification and design of the solution
- Development of the proposal/technique/work
- Experimentation and assessment of the proposal/technique/work
- Conclusions
- List of references used
- Annexes with supplementary information

Article 13. Intellectual property

Industrial and intellectual property rights in type A theses are governed by the regulations in effect at the UPC. It should be noted that these regulations do not affect type B, C and D theses

as they are completed outside the scope of the UPC.

In the case of type B or D theses, intellectual property rights in the master's thesis are governed by the agreement between the student and the company concerned. In the case of type C theses, intellectual property rights are governed by the academic regulations of the university where the master's thesis is completed.

The only exception that must be considered is when the supervisor of a type B master's thesis is an FIB professor. In such cases, the agreement between the professor and the company involved must stipulate who will own the intellectual property rights in the master's thesis.

Article 14. Confidentiality

All master's theses are made public through the UPC's Libraries, Publications and Archives Service. A student or thesis supervisor may submit a reasoned written request for confidential treatment of a master's thesis to the vice-dean for Postgraduate Studies. When confidential treatment is approved, information related to the thesis is not made public and is only accessible to examiners for assessment purposes and subsequent recording in the student's academic record.

In the case of type B and type D theses, the examination committee will under no circumstances sign non-disclosure agreements at the request of the company or institution involved.

If desired, the confidential treatment of a thesis may be changed following its defence by submitting an application signed by the student, the thesis supervisor and, if applicable, the tutor. Applications must be addressed to the vice-dean for Postgraduate Studies.

Chapter 2. Specific regulations

Section 1. Specific regulations for the master's degree in Informatics Engineering (MEI)

Article 15. Language of the master's thesis and thesis defence

Documents related to the master's thesis must be written in Catalan, Spanish or English.

Article 16. Credits and workload

The master's thesis counts for 30 ECTS credits. The workload for students is 30 hours per credit.

Article 17. Master's thesis registration

Students may register for the master's thesis when they have passed a minimum of 30 ECTS credits for compulsory subjects.

Article 18. Master's thesis enrolment

Students may enrol for the master's thesis when they have passed a minimum of 30 ECTS credits for compulsory subjects.

Article 19. Format and content of the thesis

The thesis must include an abstract in three languages: Catalan, Spanish and English.

The guide to the thesis content must follow the recommendations provided in the general regulations. Students must also include a section on the management of the project and the planning of the thesis work. It is recommended that students use the following structure:

- Background analysis
- Work plan
- Sustainability report
- Feasibility, overall economic analysis and comparison with other alternatives
- Risk assessment

Section 2. Specific regulations for the master's degree in Innovation and Research in Informatics (MIRI)

Article 20. Language of the master's thesis and thesis defence

All documents generated in relation to the master's thesis must be in English.

Article 21. Credits and workload

The master's thesis counts for 30 ECTS credits. The workload for students is 30 hours per credit.

Article 22. Master's thesis registration

Students may register for the master's thesis when they have passed a minimum of 60 ECTS credits for compulsory subjects.

Article 23. Master's thesis enrolment

Students may enrol for the master's thesis when they have passed a minimum of 78 ECTS credits for compulsory subjects.

Article 24. Format and content of the thesis

On the compulsory cover page stipulated in Article 12 of these regulations, in Section E, the name of the specialisation (without acronyms) must be included in parentheses after the official name of the master's degree.

Section 3. Specific regulations for the master's degree in Artificial Intelligence (MAI)

Article 25. Language of the master's thesis and thesis defence

All documents generated in relation to the master's thesis must be in English.

Article 26. Credits and workload

The master's thesis counts for 18 ECTS credits. The workload for students is 30 hours per credit.

Article 27. Types

Given the interuniversity character of this master's degree, theses completed at the other associated schools (the Faculty of Mathematics of the University of Barcelona and the School of Engineering of the Universitat Rovira i Virgili) are treated as type A master's theses, and the academic staff of these schools are considered academic staff of the master's degree for all purposes. They can therefore supervise type A master's theses or act as tutors for type B and type D master's theses.

Article 28. Master's thesis registration

Students may register for the master's thesis when they have passed a minimum of 30 ECTS credits for compulsory subjects.

Article 29. Master's thesis enrolment

Students may enrol for the master's thesis when they have passed a minimum of 30 ECTS credits for compulsory subjects.

Article 30. Assessment and composition of the examination committee for the final milestone

Master's theses are assessed jointly by the partner schools participating in the master's degree, and the examiners for the final milestone are members of the academic staff of those schools.

Article 31. Format and content of the thesis

On the compulsory cover page stipulated in Article 12 of these regulations, the names of the partner schools must be indicated in Section F. Therefore, the following schools must be shown:
BARCELONA SCHOOL OF INFORMATICS (FIB)

FACULTY OF MATHEMATICS (UB)

SCHOOL OF ENGINEERING (URV)

Also, in Section G, the other partner universities must be indicated. Therefore, the following universities must be shown:

UNIVERSITAT POLITÈCNICA DE CATALUNYA (UPC)-BarcelonaTech

UNIVERSITAT DE BARCELONA (UB)

UNIVERSITAT ROVIRA I VIRGILI (URV)

Article 32. Intellectual property

Industrial and intellectual property rights in type A theses are governed by the regulations in effect at the university where the thesis is completed.

Section 4. Specific regulations for the master's degree in Data Science (MDS)

Article 33. Language of the master's thesis and thesis defence

All documents generated in relation to the master's thesis must be in English.

Article 34. Credits and workload

The master's thesis counts for 30 ECTS credits. The workload for students is 30 hours per credit.

Article 35. Master's thesis registration

Students may register for the master's thesis when they have passed a minimum of 60 ECTS credits for compulsory subjects.

Article 36. Master's thesis enrolment

Students may enrol for the master's thesis when they have passed a minimum of 78 ECTS credits for compulsory subjects.

Article 37. Final milestone

The final assessment must include an assessment of the gender competency associated with the master's thesis. There are two points on which the gender competency is assessed:

- In the thesis and its presentation in the defence before the examination committee, use of inclusive language, references and examples is assessed.
- The following technical issues are also assessed: ethical issues related to data management and analysis; issues related to equity, where possible biases are identified and assessed both in the data and in the processes carried out in relation to data management and analysis; and actions carried out to eliminate or mitigate such biases. A critical analysis of the impact of these issues on the work done is required.

Assessment of the gender competency is included in the single numerical assessment. It is recommended that the examination committee consider the impact of the gender competency on the final mark as follows:

- Up to 20% of the final mark based on the quality of the thesis and the presentation.
- The technical aspects of this competency should be assessed together with the other technical competencies and can potentially have an impact of 100% on the final mark.

Transitional, repealing and final provisions

Transitional provision

These regulations do not affect master's theses that students enrol for before 1 February 2023. Any master's theses defended in the extraordinary spring 2023 defence period will also be exempt.

Repealing provision

The regulations governing MEI, MIRI and MAI master's theses are hereby repealed, including specifically the Master's Thesis Regulations for the FIB Master's Degree in Informatics Engineering, approved by the Standing Committee on 2 October 2013, and the amendments thereto, approved on 5 February 2014 and 19 March 2014; the Master's Thesis Regulations for the FIB Master's Degree in Innovation and Research in Informatics; and the Master's Thesis Regulations for the Master's Degree in Artificial Intelligence, approved by the Standing Committee on 20 November 2013, and the amendments thereto, approved on 5 February 2014 and 19 March 2014.

Final provision. Entry into force

These regulations enter into force on 1 February 2023.