

Master Thesis Regulations

ERASMUS MUNDUS JOINT MASTER in Intelligent Field Robotic Systems (IFRoS)

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1. Scope

The Master's thesis is regarded as an activity of the student in an area related to the topics of the master, with an equivalent of 30 ECTS. The IFROS Master's students will perform their Master's thesis during their 4th semester. Students must be enrolled in their second-year University (i.e., Uni. Zagreb or ELTE). The duration of the thesis is normally 20 weeks (from January/February to May/June). The aim of the Master's thesis is to develop the academic skills of the student such as the ability to search for information, critical evaluation and analysis of existing solutions, and independent production and application of knowledge to develop a specific topic.

Before you can start working on your Master's thesis, the general rule is that all other courses needed to complete your degree must be completed in advance. In certain cases, students can be allowed to begin their thesis work with remaining courses. In such cases, the students must send a written application to the faculty, asking to begin their thesis work even with remaining courses. The application must be signed by the student's thesis supervisor, confirming that the remaining course(s) will not affect the student's ability to complete the thesis. Please note that:

- No more than 2 remaining courses are allowed.
- The remaining course(s) cannot be significant to the student's thesis work.
- Any compulsory field work in the student's program must be completed.

2. Working on your thesis

The Master's thesis is the ultimate proof of the student's ability to independently manage more complex problems in the domain of intelligent field robotic systems, and to work as a scientific engineer or researcher in a position requiring specialized skills. The Master's Thesis is an individual, but guided project, which trains students for industrial and/or research work.

Especially during the master project, students must show that they are able to:

- interpret a project proposal and translate it to more concrete research questions,
- organize their work by making a project plan, executing it, adjusting it when necessary, and managing unexpected developments,
- work in a systematic way and document their findings as they progress,
- work in correspondence with the level of the elective courses they have followed,
- perform original work that has sufficient depth to be relevant to the research in the chair,
- find and study the relevant literature, software, and hardware tools, and critically assess their merits,
- work independently and goal oriented under the guidance of a supervisor,
- seek assistance within the research group or elsewhere, if required and beneficial for the project,
- benefit from the guidance of their supervisor by scheduling regular meetings, provide the supervisor with progress reports and initiate topics that will be discussed,
- write a master's thesis report that motivates their work for a general audience, and

- communicates the work and its results in a clear, well-structured way to their peers,
- defense their master thesis work to fellow-students and members of the thesis committee,
- and create an A1 poster presentation to explain their work at a more local audience.

3. Procedure

The student will follow the procedure stated below, according to the dates shown in Annex A.

- I. **Thesis topic choice.** The student will present the thesis topic proposal agreement form (Annex C) to the local master coordinator with a copy to (info@ifrosmater.org). To facilitate this aim:
 - a. at the beginning of the third semester the consortium will deliver a set of master thesis topic proposals to the students (Annex B), or
 - b. the student can propose his own master thesis topic in an institution outside the consortium (see point 5) that will be added as an associated partner of the master (compulsory step). In that case, a thesis topic proposal with a similar structure of the thesis topic proposals of point (3.I.a) should be accorded with the outside institution.

- II. **Thesis work.** The student will work on the master thesis, under the guidance of their supervisor during the 4th semester. During the first weeks of the semester, the student must send a thesis topic declaration form (Annex D) which includes information like: Title of the thesis, Aim, Brief description, Main tasks, planning/chronogram, thesis supervisor, hosting research group, company, or institution, etc.

- III. **Thesis submission.** On a due date, the student will present a master dissertation document equivalent to a journal article and containing at least the following points:
 - a. Introduction and problem definition
 - b. State of the art
 - c. Methodology
 - d. Results
 - e. Conclusions
 - f. Bibliography

The thesis should have approximately 35.000 words or 40 pages. Formatting guidelines and templates for the master thesis dissertation will be distributed during the semester by the supervisors and may change slightly depending on the university where the student is enrolled. ELTE university students must also fill a final examination application form before the thesis submission. In this document, students must choose 3 subjects from their studies (1st or 2nd year) that they will be asked about during the master thesis defense

- IV. **Thesis presentation (thesis committee).** On a due date (see calendar), the student will present the master in front of a thesis committee. The thesis presentation will last about

45 minutes per candidate, being ~20 minutes for the candidate's presentation and ~15 minutes more for questions from the thesis committee. Three members will form the thesis committee, when possible, one from each institution. A poster session will also be scheduled to present the master's thesis work in a more friendly environment during the IFROS day.

- V. **IFROS day.** A poster session will be organized during the IFROS day to explain your work to all the participants. The poster must have A1 format and be sent in PDF to info@ifrosmaster.org by the date defined in the calendar.

4. Evaluation.

The master thesis will be evaluated using the following incomings:

- a. **Supervisor (33%).** The supervisor will evaluate the work of the student in terms of quality, management, performance, and the dissertation document. If there is more than one supervisor, they must agree on a single grade among all of them. The thesis committee shall have the authority to modify this grade if its value is considered unreasonable in relation to the others.
- b. **Thesis committee (66%).** The examination board will evaluate the oral presentation (presentation skills, structure, results, methodology, etc.) as well as the master thesis document presented (33%). After the thesis presentation, the thesis committee will ask questions to the candidate related to the master thesis as well as to core materials of the master course from a previously announced list of topics (33%).

After the master presentation the master thesis committee will fill the following table:

Who	What is evaluated	%
Supervisor(s)	Thesis document and follow-up of the work	33,33%
Thesis committee	Thesis document	16,66%
	Thesis presentation	16,66%
	Questions	33,33%
TOTAL		100%

The grades to be introduced at ELTE and UNIZG will be transformed to their local system using the conversion table created for that purpose, but the final mark will remain the same.

5. Writing your thesis outside the IFROS consortium

First, it is important to clarify to the students that the only thing the university obtains in return for the student's education is the work done in the Master thesis. Hence, we prefer and encourage all the students to do the master thesis within the members of the consortium.

If you want to do the entire thesis in another institution, you need to take care of several things which you must organise on your own.

- You need to contact the supervisor (in the external institution) and have his written approval to accept being the supervisor.
- You will have to sort out the accommodation and any VISA issues by yourselves.
- The external institution should become an associated partner. Moreover, the IFROS consortium will ask the external institution to become an IFROS patron. The institution must sign an agreement concerning the collaboration conditions, work placement, benefits, and the use of results produced in the Master's thesis with the university in which the student is enrolled for the second year. An additional agreement will also state the economic costs that will be requested to the external institution (i.e. partnership).

6. Calendar definition

The calendar of the Master Thesis process is approved by the master consortium and is detailed in the Annex A.

ANNEX A – MSc Thesis Calendar for the 202X-202X IFROS promotion

	Date/deadline	Comments
Starting of the 3 rd semester	September/October 20XX	
MSc Thesis offers	October 20XX	IFROS professors will prepare master thesis proposals using Annex B . At the end of October, beginning of November, all proposals will be collected and sent to the students.
Submission of the MSc Thesis Proposal Agreement	November 20XX	Students will select a master thesis from those proposed by the professors or proposed by a third-party institution. In this case, Annex B must also be filled and the proposal needs to be approved by the consortium beforehand. Students will submit the document in the Annex C , signed by the student and the supervisor.
End of the 3 rd semester	January 20XX	Starting the master thesis work.
Submission of the MSc Information	February 20XX	Submit the document in the Annex D , after careful discussion with your supervisor.
Submission of the MSc Dissertation	May/June 20XX	Submit the thesis dissertation electronically. A template will be provided.
Submission of the poster	June 20XX	Submit the poster. No template is given, use a free one or one from the institution where you are doing the master thesis.
Master thesis defence in Girona	Around 20 June 20XX	All students will defend in the Universitat de Girona. Submit a pdf version of the presentation slides.
IFROS Day	Around 20 June 20XX	Science forum, student poster presentations and oral presentations with the participation of private companies (see IFROS day program).

Remarks:

We will use the internal webpage of the UdG to distribute the information. You must use the same platform for all your

submissions (the Catalan name of the module is: Tesi de master).

ANNEX B – Master Thesis Proposal

Title

Institution: University of Consortium (UNIZG, ELTE, UdG, Associated Partner)

Training place

Supervisor name

Contact Email

Brief Description of the project

Should include include:

- Expected MSc outcomes (a system for ...; a comparison of...)
- What are the main approaches to be followed? What is the closest literature reference?
- Requires the use of a particular hardware or simulation tool? Is that available?
- Are datasets available, so that students can start to work by themselves?

Software/Hardware needs and skills

- What is the expected programming load? In what programming language? (Python, C/C++, Matlab...)
- Which software libraries will be required to use?

ANNEX C – Master Thesis Proposal Agreement

1. Student Information

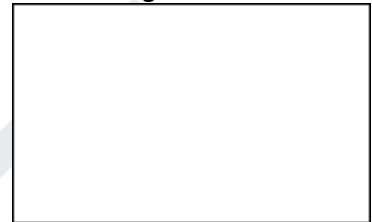
Family Name:

First Name:

Passport Number:

e-mail:

Date and Signature



2. Supervisor Information

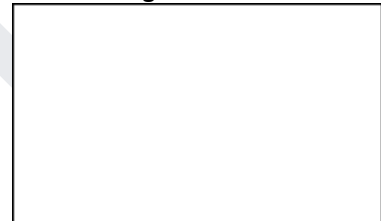
Name:

Department:

Institution:

e-mail:

Date and Signature



3. Master Thesis Information

Title:

Training place:

Country:

DRAFT

ANNEX D – Master Thesis Declaration Form

Name of Student:
Training: Full-time
Email Address:
Phone Number:

Name of LOCAL supervisor:
Department:
Contact (email, phone)

Name of EXTERNAL supervisor:
Department:
Contact (email, phone):

Information about the internship
Name of the company/research center:
Starting date of internship:
Closing date of internship:
Weekly schedule:

Title of the thesis:

Topic of the thesis (1 – 1,5 pages)

- context, motivation (2-3 sentences)
- what would you like to achieve (what is/will be your added value) (5-10 sentences)
- what are the (3) research questions (you would like to answer)
- how would you like to achieve, what will you do (technology, method, tools, analysis, ...) (10-20 sentences)
- 5 keywords

Confidentiality is necessary: YES/NO

I ask for the acceptance of my thesis topic

.....,/...../202

.....

Student

I approve of the suggested topic of the Master's Thesis:

.....,/...../202

.....

LOCAL supervisor

I approve of the suggested topic of the internship, and in the name of the institution (organization, company) above I agree, that the named student will carry out his/her internship along the conditions detailed above:

.....,/...../202

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External supervisor

The topic of the thesis and internship is approved by

.....,/...../202

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