

Doctoral Program in *Leaders for Technical Industries* – Engineering Design and Advanced Manufacturing

Follow-up of student research activities and Doctoral Dissertation Committee (DC)

Internal Regulations

June 2014

These Regulations are established under the “IST’s General Regulations for Doctoral Programs” and within the legal framework of the Doctoral Program in *Leaders for Technical Industries - Engineering Design and Advanced Manufacturing*, LTI-EDAM (Portugal’s Official Journal, “Diário da República”, II series, No. 62, of 28 March 2014). They were defined and are implemented by the Program’s Scientific Committee, SC.

1. Scope

The primary objective of these Regulations is to guarantee an adequate research orientation and supervision for all students involved in the LTI/EDAM Program of IST in terms of an innovative agenda of advanced education and research in “**Engineering Design**”. This program stands out from doctoral programs offered in traditional areas of engineering through the development of crosscutting and trans-disciplinary competences in “engineering systems” that help explore solutions for **complex industrial problems through project-oriented and project-based activities**. In order to achieve these objectives, the program emphasizes basic research in “engineering systems”, together with project-based activities in engineering design and advanced manufacturing. It brings together all branches of Mechanical Engineering, along with other scientific areas at IST, as well as in cooperation with strategic partners.

2. Key Guidelines

Every student should propose a **dissertation topic** to the *Program Scientific Council* (PSC), together with a **supervisor**, co-supervisors (if applicable), and a **Dissertation Committee (DC)**, in order to monitor and step up research activities as per the terms below:

- The R&D topic and the related dissertation to be developed by the student must be perfectly suited to the scope described above.
- The student must identify the supervisor and, where applicable, co-supervisors, together with the DC during the program 1st year, preferably before the end of the 1st semester. This process is supposed to start at the preparation stage of applying to the program and must be concluded as soon as possible, so that the student concentrates in his/her research activity;
- The DC consists of at least 4 people and must guarantee the multidisciplinary nature of the program. It includes the supervisor at IST and (at least) another IST faculty member. It should preferably include another researcher/professor external to IST and, where possible, an MIT faculty member and/or industry expert. It is suggested that the DC does not exceed 6 people;
- The DC must meet with the student at least once a year during the doctoral program and submit written recommendations to the student and the PSC.
- The DC must ensure that enhanced cooperation with industrial firms is promoted in the course of the work, mostly through an industry expert of recognized merit and, if adequate, that the student carries out research activities in an industrial setting (e.g., including an “industrial research residence”).
- The researcher/professor external to IST must be preferably identified under the cooperation with FEUP and UMinho teams, as per the program approved by the Foundation for Science and Technology, FCT under the MIT-Portugal Program. Within this framework, the DC must consider enhanced cooperation at national level, namely through research periods at UM and FEUP, among

- other potential partner institutions.
- The DC must also ensure that enhanced cooperation with MIT is promoted, mostly in order to make sure that the student experiences research periods at MIT. The joint co-supervision of students by MIT faculty members should be promoted, if adequate.
- The DC should also make sure that experimental activities are promoted through the laboratory network included in the “IST Design Studio”, as a pivotal and distinctive component of the program at IST.
- The DC ends its regular activity by the time the PSC appoints a Board of Examiners to assess the student’s dissertation. The DC annual reports will be taken into account in the process of appointing the Board of Examiners.

3. Dissertation topic identification and appointment of the supervisor and co-supervisors

The student is solely responsible for identifying the dissertation topic and his/her supervisor. His/her choice should be duly justified within the framework and nature of the Program and the existing competences at IST.

It is the PSC responsibility to appoint the scientific supervisors, once they expressly agree and after the student has chosen them at his/her discretion. This process should take place before the end of the 1st doctoral year and preferably during the 1st semester.

The PSC is also responsible for appointing student co-supervisors, on the basis of an adequate justification by the scientific supervisor, after the student has chosen them at his/her discretion.

4. Composition and Organization of the Dissertation Committee (DC)

The program requires the existence of a DC, which should be approved by the PSC on the basis of an adequate justification. It must consist of at least 4 people, preferably with a comprehensive variety of competences, multidisciplinary in nature, including:

- a) The scientific supervisor, who is a faculty member at IST;
- b) Other IST faculty member from a scientific area complementary of that of the student supervisor, preferably broadening the scope of the supervisor’s competences;
- c) At least two researchers/professors/experts external to IST, including at least a faculty member external to IST, preferably within the framework of national cooperation established for the program and a faculty member from MIT and/or an industry expert of recognized merit;
- d) The DC composition must ensure people associated with at least two distinct scientific areas and/or fields of knowledge.

The DC will be coordinated/chaired by the most senior member of the highest rank and/or by the industry expert or specialist of recognized merit, excluding the supervisor.

The DC Chair is responsible for submitting the DC written reports to the PSC.

Any co-supervisors may participate in DC meetings as “observers” and should assist in the DC activities and in the relationship with the student.

5. The Role of the Dissertation Committee (DC)

- a) To follow-up progress of the student’s research work during the course of his/her doctoral work, including the elaboration of annual progress reports until the submission of the final doctoral dissertation;
- b) To follow up each student in his/her preparation of at least a public seminar about his/her research work;
- c) To approve the dissertation proposal to be submitted by the candidate, by elaborating a report with an overall assessment of the dissertation proposal;

d) To deliver information regarding the reports referred above to the PSC, which will be taken into consideration during the process of acceptance of the dissertation proposal and establishment of the Board of Examiners, as well as in any opinion from the Program Coordinator and the PSC regarding scholarship renewals.

6. Regular activity of the Dissertation Committee (DC): deadlines and schedules and duties of a student

- a) The student must identify the DC during the 1st year of the doctoral program, under the identification process of the dissertation topic;
- b) The DC should ensure that at least a public seminar will be held by the student until 24 months after registering in the program;
- c) During the public seminar the student should submit, to the DC: i) a *scientific paper*, in a publishable format; and ii) a *dissertation proposal*, with approximately 20 to 30 pages, including the review of relevant bibliography, the description of the research hypothesis and specific objectives, as well as the research proposal and any related project.
- d) During the last DC meeting, before submitting the final dissertation and requiring the appointment of the board of examiners, the student should submit to the DC: i) at least *two scientific papers*, in a publishable format; and ii) a *preliminary dissertation proposal*, containing approximately 50 pages.
- e) The DC meetings must be organized and scheduled directly by the student, in strict cooperation with the supervisor, and should be held at least once a year during the doctoral studies;
- f) The follow-up reports referred to in 5 above must be issued annually.

7. Conclusion of the Dissertation Committee (DC) and appointment of the Board of Examiners

The regular activity of the DC ends with by the time the student and his/her supervisor request the appointment of a Board of Examiners to assess the student's dissertation. The DC annual reports will be taken into account for this purpose.

The supervisor or the student should request the appointment of the Board of Examiners with the following documents:

- A dully justified proposal for the composition of the Board of Examiners, in agreement with the guidelines in force at IST and including at least two distinct DC members, one of whom must be proposed as examiner;
- The information delivered in the last DC meeting, including scientific papers and a preliminary dissertation proposal, containing approximately 50 pages;
- The annual DC reports.

8. Transitional Provisions

All students regularly registered at LTI should propose/set up their own DC by the end of November 2014.

Lisbon, IST, 30 June 2014

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