

Computer Science

Rules of the PhD program

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1. Premise

The following rules for the Academic year 2015/2016 have been defined starting from the regulation applied during the 2013/2014 and 2014/2015 and continuously improved and refined on the basis of the feedback, needs and comments received by students, post-docs, and faculty members.

2. The PhD program

The PhD program in Computer Science is organized in collaboration with the IMT Institute for Advanced Studies, Lucca. The overall program is monitored by a Scientific Board (Collegio dei docenti), which decides about the selection committee for admission to the program and monitors students' performance and deliberates their admission to subsequent years and to the final exam to defend the thesis.

The PhD program lasts three years. During the first year, courses are organized around three main **pillars**:

- Foundations of (Modern) Networks,
- Specification and Analysis of Concurrent Reactive Systems,
- Software System and Services.

All **lectures** are held in English and students are offered, on the one hand, a number of basic courses that permit building on a common background and on the other hand other courses about advanced topics of concurrent and distributed systems, software engineering and computer networks. Apart from internal GSSI courses, students are encouraged to take classes also at summer schools or at other institutions in Italy or abroad. Performances in the exams and quality of the thesis proposal (submitted at the end of the first year) are the main criteria for deciding admission to the second year. The second and third years are mainly dedicated to research. Students are strongly encouraged to spend part of their research studies in external labs in Italy or abroad.

The Italian PhD program is subdivided in so called "cicli" ("cycles"), the GSSI PhD program started when the current "ciclo" ("cycle") was numbered XXIX. Table 1 shows the Scientific Board of the XXXI cycle.

Professors of Italian Universities			
Professor	University	Department	Role
Rocco De Nicola	IMT Lucca and GSSI	Computer Science and Applications	Full Professor
Guido Caldarelli	IMT Lucca	Economics And Institutional Change	Full Professor
Michele Flammini	L'Aquila	DISIM	Full Professor
Massimo Riccaboni	IMT Lucca	Economics And Institutional Change	Full Professor
Mirco Tribastone	IMT Lucca	Computer Science and Applications	Associate Professor
Paolo Prinetto	Politecnico di Torino	Control and Computer Engineering	Full Professor

Scientists of Italian research Institutes and foreign Institutes/Universities			
Professor	Institution	Country	Role
Luca Aceto	Reykjavik U.	Iceland	Full Prof.
Antonia Bertolino	CNR - Pisa	Italy	Research Director

2.1. First year

Teaching of the first academic year is organized according to the following schedules:

- Immigration courses - from November to mid January.
- Core courses – from mid January to the end of March
- Advanced courses – from beginning of April to the end of July.

Regardless of its type (immigration, advanced, or core), a course will be offered either by a single teacher or by a team of two or three teachers.

Immigration courses have an introductory nature and provide basic knowledge about each of the three pillars. Specifically, for each pillar, a course of 30 hours has been offered of lectures targeted at the acquisition of techniques, methods, and skills needed to conduct the research in computer science in later years.

The **core courses** take the form of in-depth courses on topics of central interest to the PhD program, to expose doctoral students to the topics of interest of the specific pillars. For every pillar, three core courses will be offered, each consisting of 20 hours of lectures.

The **advanced courses** focus on research topics of specific interest of the pillars or of inter-pillars interest. Unlike core courses, advanced courses will be focused on specific problems and of shorter duration (from 2 to 10 hours each).

Every student of the PhD program must attend all the courses (330 hours overall). Moreover, they must pass the exams of the following courses:

- all immigration courses (90 hours total);
- two core courses for each pillar (120 hours total);
- one core or advanced course.

The examination format will be agreed with the lecturers. This could amount to the preparation of an essay, of a seminar, or could consist in take-home assignments, formal examinations, etc.

2.2. Admittance to the second year

At the end of the first year, each student has to produce a **proposal for a doctoral thesis**. A scientific committee evaluates each proposal in terms of its scientific relevance, novelty, feasibility, and alignment with the GSSI research themes. For the admission to the second year of PhD of each student, the Scientific Board considers:

- the mark obtained for the exams passed throughout the year
- the aptitude for study and research emerged from the proposed PhD thesis.

When admitted to the second year of the PhD program, each student actively works on the proposed thesis.

2.3. Second and third year

During the second and third years the students are supposed to do research and to prepare their PhD thesis.

Two advisors will follow each student:

- A *supervisor* who has the goal of providing conceptual guidance and supervision to the student,
- an *internal advisor* who has the task of following and supporting the student in his daily research activities and paper writing.

3. Publications

Students are supposed to indicate their affiliation at the Institute in their research papers, posters, talks and generally works, that are produced during their stay at the GSSI. Examples of research papers with authors affiliated with GSSI can be found here: <http://cs.gssi.infn.it/publications>.

4. Website

The reference website of the GSSI - Computer Science research group has been created. The website is available at: <http://cs.gssi.infn.it>.

The website has been designed and developed in order to provide functions of different types. Specifically, its main function is for information purposes, with the aim of making available to the public all information related to the research activities of the GSSI – Computer Science, interests and research areas of the members of the faculty, post-doc researchers, and graduate students, research projects in progress, the various software and platforms developed by members of the GSSI – Computer Science, references to get in touch with members of the GSSI – Computer Science.

Moreover, the website also has a service function: students, researchers, or anyone concerned with our research activities can find detailed information on the contents, methods and characteristics of all planned activities, such as seminars or open events.

Finally, the website is the main communication means for any update about PhD courses schedule, planned seminars, news, etc.