IMT SCHOOL NATIONAL PHD PROGRAM IN "CYBERSECURITY",

CALL FOR APPLICATIONS 2024/2025
EXECUTIVE SUMMARY

PHD PROGRAM DESCRIPTION

The IMT School for Advanced Studies Lucca has launched the call for applications for the National PhD Program in "Cybersecurity" (2024/2025 academic year):

Course Description	The National Doctoral Program in Cybersecurity (Ph.D.-CySec) aims at forming a new generation of scholars, and future decision makers, who can support and increase the resilience of citizens, public institutions, and businesses to cyber-attacks, by developing and properly implementing digital processes and infrastructures that are more secure and reliable.
	Upon completion of their studies, Ph.D. candidates will have been trained to tackle the growing complexity of cyberattacks, exploiting holistic approaches spanning technological, economic, human, social, and legal aspects.
	To reach such a goal, the Ph.D.-CySec program puts forward a strong multi- and inter-disciplinary approach providing a basic exposure to all such wide-ranging spectrum of competences and focusing on four key thematic Specialization Tracks: 1. Foundational Aspects in Cybersecurity 2. Software, System, and Infrastructure Security 3. Data Governance & Protection 4. Human, Economic, and Legal Aspects in Cybersecurity
	Thus, Ph.D. candidates will learn how to approach cybersecurity issues from different perspectives within an inter- and multi-disciplinary team of experts from other fields. During their educational training, candidates will be given the possibility to face and tackle real-world case studies by actors and stakeholders in the field both from the private and from the public sector.
	In the sequel, a brief description of the main themes considered in each track is provided.
	Foundational Aspects in Cybersecurity The track will provide scientific background to further advance research in cybersecurity. Candidates will study, among the others, cryptography, Artificial Intelligence, secure programming, distributed computing, formal methods, and languages to push further the most novel contributions to cybersecurity research.
	Upon graduation, the Ph.D. candidate will be able to collaborate with research teams in academia and in private or public research centers.
	It is expected that applicants possess a strong mathematical and/or technological background that will be further refined during the course but will also be complemented by notions related to economical, legal, and social aspects.

Course Description	**Software, System, and Infrastructure Security** The track aims to provide the scientific, technological, and methodological knowledge required to face, in an appropriate and proactive way, the main problems posed by the security of systems and infrastructures of various nature and complexity, including software, hardware, and communication systems, characterized by different security and resilience requirements, depending on their specific field of application. Upon graduation, the Ph.D. candidate will be able to collaborate with multidisciplinary teams aimed at addressing, from both a technological and an operational point of view, the various security aspects of systems and infrastructures, including the critical ones. The professional outlets include, in addition to the academic career, managerial roles in the private sector and in public administration, government agencies, as well as the employment in research organizations of various types that require professionals, experts, and leaders characterized by solid scientific, technological, and methodological backgrounds in cybersecurity. **Data Governance & Protection** This curriculum provides the scientific, technological and methodological knowledge related to data governance and protection. Students will acquire the skills necessary to address the scientific and technological research challenges related to ensuring data security and privacy in advanced scenarios, including those based on emerging disruptive technologies (e.g., AI and ML). Students will be prepared to perform research in academic institutions, and private or public research centers. **Human, Economic, and Legal Aspects in Cybersecurity** Cybersecurity is not just technology: to prevent attacks on companies and institutions, the society needs profiles that not only possess the necessary technical knowledge and expertise on information technologies, but that are also able to understand the general socio-legal framework in which they operate and how to design operational processes in line with fundamental-rights protection standards, regulatory obligations, international policies, and economic implications. This track is primarily aimed at Ph.D. candidates with a non-STEM background, allowing them to develop a solid knowledge of the technical aspects of cybersecurity that will be used to understand and address potential or existing cybersecurity risks, and master the strategies necessary to reduce them and protect private information.

The IMT School adopts equal opportunity principles in its selection procedures and rejects any type of discrimination based on sex, gender identity, nationality, ethnicity, religious belief, sexual orientation, state of health, and any other status or quality that is not strictly relevant to the call outlined in this document.

Program official duration: 3 years.

Programs start on December 2nd, 2024.

PhD Program Coordinator: Prof. Mirco Tribastone

Program official language: English.

Scholarships: 33 (distributed among the available **research projects**)

The number of positions may be increased in the event that additional funding is made available after the publication of the Call.

Scholarship gross amount: 16,243.00 Euros/year (see the "Scholarships" paragraph).

Additional benefits:

- All PhD students admitted to the PhD Program are exempt from paying tuition fees, although they are still responsible for paying the yearly Regional Education Tax (currently 140.00 Euros/year);

- PhD students may be offered additional benefit (see projects descriptions).

<u>REQUIREMENTS</u>

Applications are open to candidates who meet the following requirements:

1. **Degree**:
   - "Laurea Magistrale" or "Specialistica" (according to DM no. 509, of November 3, 1999), or a four- or five-year degree (according to the previous rules of the Italian higher education system) obtained in Italy;
   - Foreign degrees that give access to the PhD in the Country where they have been awarded.

<u>For the selection procedure</u>, candidates are required to upload the documents indicated in Table 2 - Attachments to the application.

Applicants who obtain their degree by no later than **October 31st, 2024,** can also apply. These candidates will be admitted to the selection procedure "with reserve" and must provide their degree certificate by the date of enrollment, or they will be excluded from the program.

2. **Knowledge of the English language**: Applicants are required to indicate their level of English.

<u>APPLICATION</u>

The **application form** must be **mandatorily** filled out in **English** through the School's online procedure **by August 26th, 2024 at 1:00 p.m. (CEST)**.

Applicants must upload the **documents** in **PDF**. The **maximum size is 30MB** for each attachment.

The Selection Committee will accept **attachments** in **Italian or English only** (unless otherwise specified in the table below).

Table 1: Information		
Personal information	compulsory	In this section, applicants must enter their personal data (name, address, contact details, etc.).
English Language Level	compulsory	Applicants must indicate their level of English.

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Additional information/Interview	compulsory	Applicants have to indicate the modality for the interview (IMT School campus, videoconference, or similar, or by telephone at an Italian embassy/consulate).
Additional information/Disability	optional	Applicants should indicate if they need assistance to participate in the selection procedure.
Additional information/How did you first find out about IMT?	compulsory	Applicants are required to indicate how they found out about the IMT School.
Education	compulsory	Applicants are required to indicate their university degrees. The degrees have to give access to the PhD in the Country where they have been awarded.
Additional qualifications	optional	In this section, applicants may list any other qualifications considered relevant in relation to their application.
Publications	optional	Applicants can list their own published articles, books, or any material that may be considered relevant for the PhD and research activity.

Table 2: Attachments			
1	Copy of National Identity Card or Passport	compulsory	Applicants have to upload a copy of a valid identity document: • <u>For Italian and EU citizens</u>: Valid National Identity card or Passport • <u>Non-EU applicants</u>: National Identity card or Passport (the latter is highly recommended). <u>The copy has to be</u> **signed by the candidate, indicating the date and place of the signature**. In particular, the document has to contain the applicant's photograph, personal data, and document number, place and date of issue. If any of the above information is missing, the document will not be accepted. If the document is not in English or Italian, a translation into English or Italian should also be uploaded (an official/legal translation is <u>not</u> required). In the event that the copy of the document is unreadable, the Selection Committee may request a new submission.

2	**Curriculum vitae et studiorum/Resume**	compulsory	Applicants must upload their curriculum vitae et studiorum/resume **in Italian or English (the latter is highly recommended)**, indicating their university degrees, work and research experience, and publications (if any).
3	**Education**	compulsory	Candidates are required to upload one of the following documents **in Italian or English**: • for **degrees obtained in Italy** and/or in **France**, **Ireland**, **Belgium**, **Denmark** (Bruxelles Convention of May 25, 1987), and **Germany** (Italian-German Convention, ratified by the Law no. 176 of 1973): a self-declaration stating the possession of a degree, conferral date, issuing University, and final grade; • for **degrees obtained in all other EU and non-EU countries**: an official certificate indicating the possession of a degree, conferral date, issuing University, and final grade.
4	**Academic transcript/Diploma supplement**	compulsory	For each degree, the applicant has to attach one of the documents listed below **in Italian or English (English is highly recommended)**: • **Academic transcript**: an official document detailing the course, classes attended or subjects studied and results, completion date, graduation date; or alternatively, • **Diploma Supplement**: document produced by the University accompanying the diploma, providing a standardized description of the nature, level, context, content, and status of the studies completed by the applicant (https://ec.europa.eu/education/diploma-supplement_en).
5	**Research Project**	compulsory	Candidates are required to express their preference for up to four (4) research projects as referred to in Article 1 of this call for applications. The preference expressed by candidates will not be binding when assigning the projects (see "Final Ranking").
6	**Research Statement**	compulsory	To best evaluate each candidate's aptitude for the PhD Program, all candidates must upload a document (**maximum 10,000 characters, spaces included**) **mandatorily in English**, describing: – the candidate's competencies and experiences within the scientific or academic field relevant to the project(s) chosen and how they would use them to address the project(s); – the candidate's motivation for pursuing study at the IMT School, with particular reference to the project(s) chosen; – future projects.

If the application lacks a piece of information or an attachment referred to as "compulsory", applicants can be conditionally admitted to the selection procedure. Their application will be considered valid only if they produce the required documents by the day scheduled for the interview.

The correct completion of the online application procedure is **confirmed by an automatic email** sent to the email address indicated by each applicant while registering for the procedure; the message only confirms the receipt of the application. The School will not verify the validity and completeness of applications before the call closes.

After the submission, no changes are allowed to the entered data.

Candidates are also required to fill out a **separate section of the application form** dedicated to referees:

References	compulsory	Applicants are required to provide the **names and contact information** of **two referees**. The **referees** who are invited to submit a **reference letter in English** through the IMT School's online application system by **August 30th, 2024, at 1:00 p.m. (CEST)**, will receive an automatic notification from the School's application system. Applicants will receive an automatic notification when a letter is submitted, but they may not access any reference provided.

SELECTION COMMITTEE

The Selection Committee is nominated by decree by the Rector of the IMT School in accordance with the School regulations and comprises experts from relevant fields.

EVALUATION CRITERIA AND SELECTION PROCEDURE

Evaluation criteria

The Selection Committees will evaluate candidates'

- academic background, knowledge, skills, and scientific potential;
- general aptitude for research and potential to collaborate in the specific research activities of the project(s) selected in the application form;
- interdisciplinarity, knowledge, and skills with reference to the multidisciplinarity of the PhD Program and to the selected project(s).

Assessment of qualifications

The first phase of the selection procedure is the assessment of qualifications. This assessment is carried out in relation to the specifics of the PhD Programs and specifically to determine who is admitted to the interview.

In the assessment of qualifications phase, the evaluation of the candidates is carried out by the Committees defined in the previous paragraph "Selection Committees" and based on the candidates' application form, uploaded documents, and reference letters provided by referees.

Based on the assessment of qualifications, the Selection Committees will draw up a shortlist of candidates admitted to the interview in alphabetical order.

The shortlist of applicants admitted to the interview will be published on the School's website and Online Notice Board ("*Albo Online*").

This is the only official communication of the preliminary results to all applicants.

Interview

Candidates admitted to the interview must confirm their participation by email to phdapplications@imtlucca.it within two (2) days of the publication of the shortlist, confirming their preference to have the interview conducted in one of the methods indicated in the "Application" paragraph of this call.

During the comprehensive interview, the Selection Committees will assess the candidates' knowledge and skills with reference to the specific characteristics of the PhD Program and selected project(s).

The Selection Committee will assess all interviews by assigning a score (up to 100 points): applicants scoring at least 70 out of 100 will be eligible for the Program and, therefore, listed in the final ranking.

Final ranking

At the end of the interviews, the Selection Committee will draft the final ranking of the eligible candidates for each research project according to the scores obtained in the interview. The preference expressed by candidates in the application form is not binding: the Committee can thus assign candidates to the ranking of projects deemed most corresponding to their profile.

If multiple candidates get the same score, preference will be given to the youngest candidate.

In the event of the withdrawal or exclusion of a candidate, they shall be replaced by the next suitable candidate according to the ranking.

All rankings will be published on the School's website and Online Notice Board ("*Albo Online*").

ENROLLMENT

Once admitted to the PhD Program, candidates wishing to enroll must submit the complete enrollment form to the IMT School **no later than five (5) days from the publication of the results** on the School's Online Notice Board ("*Albo Online*") and website, using one of the following methods:

- in person or by post to:

    IMT School for Advanced Studies Lucca
    PhD and Higher Education Office
    Piazza S. Ponziano, 6
    55100 Lucca – Italy

- by certified email to imtlucca@postecert.it

Failure to submit the enrollment request by the deadline and through the above-mentioned methods will result in an automatic withdrawal of the candidate from the Program.

The enrollment request is valid only if all the requested documents have been enclosed.

If any of the documents submitted during the application procedure do not correspond to those submitted during enrollment due to an intentional false declaration, the applicant will automatically lose their right to enroll in the program.

Enrollment is effective on the first day of official classes. Unauthorized absences may nullify the enrollment procedure.

SCHOLARSHIPS

The scholarship amount is 16,243.00 Euros/year and shall be disbursed in monthly installments.

For any research or training activities at universities or research centers abroad, the scholarship amount is increased by 50% for up to twelve (12) months.

Scholarships are subject to the payment of social security contributions (INPS) managed separately under Article 2, paragraph 26 of Law no. 335 of August 8, 1995, as amended, with two-thirds paid by the Administration and one-third by the scholarship recipient.

Admitted candidates who have already benefited from a PhD scholarship in Italy cannot be assigned another one.

The scholarship has a maximum duration of three (3) years and is subject to annual confirmation: according to articles 15 and 16 of the IMT School PhD Regulations, students must complete all the activities provided for each academic year.

If a student withdraws or is excluded within 45 days from the beginning of the Program, they are not entitled to the scholarship. The scholarship will be awarded to the next eligible candidate according to the final ranking. For this reason, the first scholarship payment will be made only after the successful completion of the first 45 days of the program.

If a student registers after 45 days from the beginning of the Program, he/she is entitled to the scholarship starting from the actual date of enrollment.

TREATMENT OF PERSONAL DATA

The IMT School will use the personal data provided by applicants solely for selection procedures and institutional aims in accordance with the provisions of the current European and Italian legislation (EU Regulation 2016/679 and Italian D. Lgs. 196/03 - *Italian Privacy Code*, as modified by the D. Lgs. 101/2018) and the relevant School Regulations.

Applicants are granted all the rights established by art. 15, sections 2, 3, and 4 of Chapter III, and art. 77 of the EU Regulation 2016/679.

For further information regarding the call and the selection procedure, please contact the PhD and Higher Education Office by email at phdapplications@imtlucca.it or by phone at +39 0583 4326530.

Further information regarding the PhD Programs and the IMT School is available at www.imtlucca.it.

FINAL PROVISIONS

Relevant laws and the IMT School PhD Regulations shall be applied to any issue or item not covered by the present call for applications.