Allegato n 2

CORSO DI DOTTORATO IN INFORMATION AND COMMUNICATION TECHNOLOGY AND ENGINEERING	
Total number of Positions	**n. 4 positions with scholarship funded by the University of Napoli Parthenope (**of which n. 2 positions with scholarships funded by Institute for electromagnetic sensing of the environment, Consiglio Nazionale delle Ricerche, IREA-CNR**)** **n. 1 position with scholarship funded by DM 117/2023 (**co-funded by Leonardo s.p.a**)** **n. 5 positions with scholarship funded by DM 118/2023 (**of which n. 3 positions on theme PNRR and n. 2 positions on theme Digital and Environmental Transitions**)** **n. 1 position without scholarship**
Deadline for application	**31 July 2023**
Requirements for reserved scholarships DM 118	**THEME: PNRR** (n. 3 positions) PhD candidates who choose the reserved scholarships (DM 118/2023) on PNRR theme must declare that they are aware that the doctoral program includes a period of study and research abroad of at least 6 months. Moreover, they have to mandatorily submit a research project proposal concerning issues aimed at bringing a significant development of knowledge, also applied, in the areas of interest of the National Recovery and Resilience Plan (PNRR). **THEME: Digital and Environmental Transitions** (n. 2 positions) PhD candidates who choose the reserved scholarships (DM 118/2023) on "Digital and Environmental Transitions" theme must declare that they are aware that the doctoral program includes a period of study and research in companies or research centers of at least 6 months, and a period of study and research abroad of at least 6 months. Moreover, they must mandatorily submit a research project proposal concerning disciplinary and thematic areas consistent with the digital transition and ecological transition, referred to in the National Recovery and Resilience Plan (PNRR).
Requirements for reserved scholarship DM 117	**THEME: Development of Novel Strain Sensing Systems for Structural Health Monitoring on Aerospace Structures** PhD candidates who choose the DM117 reserved scholarship with above theme must declare that they are aware that the doctoral program includes a period of study and research in companies or research centers of at least 6 months, and a period of study and research abroad of at least 6 months as well as mandatorily submitting a research project proposal concerning the above theme.

Requirements for positions with scholarship funded by the University of Napoli Parthenope and without scholarship	PhD candidates who choose the **positions with scholarship funded by the University of Napoli Parthenope** must declare that they are aware that the doctoral program includes a period of study and research abroad of 3 months.
Duration of the course	Three years
Academic disciplines related to PhD course	- ING-INF/01 (Electronics) - ING-INF/02 (Electromagnetics) - ING-INF/03 (Telecommmunications) - ING-INF/04 (Automatic Controls) - ING-INF/05 (Computer Science Engineering) - ING-INF/06 (Bioengineering) - ING-IND/31 (Circuit Theory) - FIS/01(Experimental physics) - ICAR/06 (Topography and cartography)
Educational objectives	The PhD Course in "Information and Communication Technology and Engineering" is aimed at Italian and foreign Master's Degrees (or graduates with equivalent qualifications), strongly motivated to undertake a training and in-depth course in the field of Electronic Engineering, of Automation, Telecommunications, Computer Science, Electromagnetics and Circuit Theory. PhD students will be guided over the three-year period by advisors, and will have the opportunity to spend periods of study at qualified academic and research institutions, including industrial ones, abroad. The goal of the doctoral course is to provide future PhDs with theoretical and practical knowledge to allow them to be protagonists both in academic and industrial contexts, through an increasingly active participation in qualified working groups. The training activities are strongly oriented to the themes developed within the Engineering Department of Parthenope. Training may also be managed in collaboration with other Research and Higher Education Institutions, both in Italy and abroad. The main purposes of the Doctorate are to develop students' autonomous capacities for study, research, innovation, and management of national and international research projects, so that these skills can be spent in public and industrial research, and for encourage the emergence of new high-tech startups. More specifically, the training objectives of the course fall within the following areas: • Nano-electronic, optoelectronic and photonic technologies and devices, for telecommunications, interconnections on chips, sensor networks; • Physical, chemical, biological sensors, biochips, lab-on-chip, micro and nanosystems for the environment, industrial processes, materials and structures, transport, space, security, food, biotechnology, medicine; • Diagnostic techniques and advanced imaging for cultural heritage, security, industrial processes, materials and structures,

	automotive and aerospace, biomedicine; • Methods and techniques for the formalization, extraction, and the management of information from large amounts of data (big data); • Software systems for simulation/emulation of the "human-like reasoning" and neuromorphic problem solving in medical field; • Techniques for 'human-machine" interaction in medicine and cultural heritage; • Methods for processing large volumes of remote sensing data based on distributed computing infrastructures; • Development of methodologies for modeling and design of control systems for complex systems; • Advanced techniques for the synthesis of antennas; • Modelling and optimization of systems and electrical, magnetic and superconductive materials on macro-, micro- and nano-scale; • Signal processing circuits and non-linear circuits for applications in energetic, biomedical and environmental fields; • Multi-polarization of scattering models for applications involving remote sensing and electromagnetic diagnostics to microwaves; • Non-stationary signals with applications to communications, radar sonar and biological systems; • Application of Artificial Intelligence (AI) techniques to Imaging and ICT; • Cybersecurity for Critical infrastructures and cloud platforms; • Development advance security systems based on Trusted Execution technologies The activities involve attending courses and seminars given by the faculty of the Department of Engineering, as well as by researchers of other institutions, both on basic topics and on more specific issues, related to the research activities of doctoral students. The training will also be carried out by attending courses offered in the framework of other PhD courses both in Italy and abroad. In the framework of the PhD course, it is also possible to obtain the Double Doctoral Degree with Xidian University, Xi.an, China, following a training program agreed with the Doctoral College.
Coordinator of the PhD board	Prof. Agostino Iadicicco (iadicicco@uniparthenope.it)
Requirements for admission	"Laurea specialistica" or "Laurea magistrale" or equivalent foreign Master's Degree. The validity of a foreign degree is assessed by the PhD Board, in compliance with the regulations in force in Italy and in the issuing country.
Evaluation of qualifications	The evaluation of qualifications by the examining committee will be based on the following criteria: - candidate's curriculum (maximum of 45 points);

	- publications (maximum of 5 points); - research project (maximum of 5 points); - reference letters (maximum of 5 points). Only the candidates who achieve a score of at least 36 points are admitted to the interview. For the evaluation of the curriculum, the candidates are invited to present the transcript of records.
Evaluation of the research project	The candidates must also attach to the application for participation in the competition, under penalty of exclusion from the competition itself, a research project proposal which will be evaluated in accordance with what is specified in the previous field.
Oral exam (interview)	The interview will be held starting from **September 14th, 2023, h 10:00 a.m.,** either remotely or in-person. The way to connect to the remote meeting will be announced through publication on the University website. The interview will be based on the discussion of the scientific qualifications, the publications presented by the candidates, the attached research project, and their curriculum. During the interview, good knowledge of at least one foreign language of the European Union will be assessed. The maximum score for the interview is of 40 points. Only candidates scoring a minimum of 24 points will pass the interview. The interview can be held either in Italian or in English.