




ADDENDUM TO THE CALL FOR APPLICATIONS - PH.D. COURSES – XXXVI CYCLE – UNIVERSITY OF CATANIA, ISSUED BY RECTOR’S DECREE N. 1730 OF JULY 7 2020

THE RECTOR

Having regard to the following:

- Ministerial Decree n. 45, 08/02/2013, “Regolamento recante modalità di accreditamento delle sedi e dei corsi di dottorato e criteri per la istituzione dei corsi di dottorato da parte degli enti accreditati”;
- The Regulation on Ph.D. courses currently in force the University of Catania;
- The Call for applications–Ph.D. Courses XXXVI cycle, issued by Rector’s Decree n. 1730 of July 7 2020 and successive modifications and integrations;
- Annex 7 of the aforementioned call concerning the Ph.D. course in “Computer Science”;
- Annex 8 of the aforementioned call concerning the Ph.D. course in “Systems, energy, computer and telecommunications engineering” as modified and integrated by the Rector’s Decree n. 2005 of July 30 2020;
- Annex 11 of the aforementioned call concerning the Ph.D. course in “Materials science and nanotechnologies”;
- Article 14, pt. 1, of the aforementioned call, which stipulates that the administration considers the possibility of modifications, updates or integrations - to be exclusively advertised through www.unict.it (section “Bandi, gare e concorsi” > “Studenti e Post laurea” > “Dottorati di ricerca”) - in case the number of places with scholarships, and consequently the number of places without scholarships, increases due to further funds made available after the issuing of this call, provided the respect of the terms of assignation of places to candidates on the pass list;
- The agreement concerning the grant of an additional scholarship for the Ph.D. course in “Computer Science” – XXXVI cycle by Enel Green Power S.p.A., stipulated on October 23 2020 with the aforementioned funding company;
- The agreement concerning the grant of an additional scholarship for the Ph.D. course in “Systems, energy, computer and telecommunications engineering” by Enel Green Power S.p.A., stipulated on October 23 2020 with the aforementioned funding company;
- The agreement stipulated on October 21 2020 with the National Council for Research and ST Microelectronis S.r.l., concerning the funding of an additional scholarship for the Ph.D. course in Materials science and nanotechnologies;
- The necessity of redefining the number of places related to the Ph.D. courses in “Computer Science”, “Systems, energy, computer and telecommunications engineering” and “Materials science and nanotechnologies” in consideration of the supervened availability of additional scholarships;
- The Decree of the Minister of Education, University and Research n. 800 of September 19 2019, registered on the same date with the University’s protocol system with n. 13798, according to which Prof. Francesco Priolo was appointed Rector of the University of Catania for six years as from the same date as the Decree;
- All this considered;

DECREES

 UNIVERSITÀ DEGLI STUDI DI CATANIA Protocollo Generale
29/10/20
Prot. 347204..... Tit.V.II Cl. 1..
Rep. Decreti 3099.....

The call for applications – Ph.D courses, XXXVI cycles of the University of Catania, issued by Rector’s Decree n. 1730 of July 7 2020, is integrated as follows:

- Art. 1 The number of places with scholarships concerning the Ph.D. course in “Computer Science” is redefined as indicated in Annex 7, with the number of available places being increased by one (1) according to what is stated in the premises.
- Art. 2 The number of places with scholarships concerning the Ph.D. course in “Systems, energy, computer and telecommunications engineering”, as integrated and modified by Rector’s Decree n. 2005 of July 30 2020, is redefined as indicated in Annex 8, with the number of available places being increased by one (1) according to what is stated in the premises.
- Art.3 The number of places with scholarships concerning the Ph.D. course in “Materials science and nanotechnologies” is redefined as indicated in Annex 11, with the number of available places being increased by one (1) according to what is stated in the premises.

CATANIA, 29/10/2020

The Rector
(Prof. Francesco Priolo)

Title of the Ph.D. course	COMPUTER SCIENCE (INTERNATIONAL)
Cycle	XXXVI
Scientific area	Mathematics, physics and natural science
Duration	3 years
Department	Department of Mathematics and Computer Science
Department website	http://web.dmi.unict.it
Ph.D. course Coordinator	Prof. Sebastiano Battiato
Partner Institution(s)	University of Hertfordshire (U.K)
Research themes	<p>The 3-year Ph.D. course in Computer Science is primarily aimed at training young researchers in the domains of Computer science, both basic and applied, and developing professionals who can have career opportunities in the academic world as well as in the industry.</p> <p>The principal research themes concern:</p> <ul style="list-style-type: none"> • Algorithms and Combinatorics • Artificial Intelligence • Assistive Technologies; • Autonomous Systems; • Big Data; • Computer Vision and applications; • Cryptography and Safety Information; • Information Forensics and Security; • Pattern Recognition and Machine Learning; • Smart Cities & Communities; • Distributed systems; • Video Analytics (e.g. Retail, Security, etc.)
Available places	<p>1) Places with scholarship financed by the University of Catania: 4</p> <p>2) Places with scholarship financed by TIM S.p.A.: 1 <u>Research theme</u>: 5G Digital Services & Massive IoT</p> <p>3) Places with scholarship financed by Enel Green Power : 1 <u>Research theme</u>: Development of a multifunctional integrated system for the collection, management and automatic and inferential processing of heterogeneous and multi-source data (e.g., systems of energy production, systems of analysis and measure, visual data, etc.)</p> <p>4) Places without scholarship: 2</p> <p>TOTAL: 8</p>
Selection procedures	<p>1) Evaluation of qualifications;</p> <p>2) Oral examination</p> <p>Candidates living abroad can take the form of videoconference interview</p>
Date, place, format and language of the oral examination	<p>Date: September 23 2020, h. 10:00 (10,00 a.m. Italian time)</p> <p>Place: Department of Mathematics and Computer Science, via Santa Sofia n. 62, Catania</p> <p>Format:</p> <ul style="list-style-type: none"> - Dissertation on the research project - General knowledge of the themes of the candidate's degree and/or the themes related to the Ph.D. course <p>Language: English</p>



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Annex n. 8

Ph.D. Course	SYSTEMS, ENERGY, COMPUTER AND TELECOMMUNICATION ENGINEERING
Cycle	XXXIV
Scientific area	Industrial and Information Engineering
Duration	3 years
Department	Department of Electric, Electronic and Computer Engineering
Department website	http://www.dieei.unict.it/
Ph.D. Course Coordinator	Prof. Paolo Arena
Partner Institution(s)	None
Research themes	<p>The Ph.D. course learning paths concern Electronics, Automation, Complex Systems Engineering and Control, Instrumentation, Sensors and Wireless Networks of Sensors, Internet of Things, Big Data, Mechanics, Materials, Bio-engineering and Bio-Robotics, Microsystems, Generation, Transmission, Use, Management and Control of Energy, Information Systems, Systems of Telecommunications and Magnetic Fields with a focus on themes related to Smart Systems, Cities and Environment.</p> <p>The course provides candidates with a skill profile that associates technical-scientific training with the development of a research project to be carried out at highly qualified institutions, both national and international, or enterprises. The academic board is integrated by foreign academics who support candidates in their training and research work.</p>
Available places	<ol style="list-style-type: none"> 1) Places with scholarship financed by the University of Catania: 6 2) Places with scholarship financed by CNR-IMM e ST Microelectronics. S.r.l. within the project "Industrial Doctorates" sponsored by CNR and Confindustria: 1 <u>Research theme:</u> "Development of data solutions for quality processes related to the industry of semiconductors" 3) Places with scholarship financed by the National Institute for Volcanology and Geophysics: 2 <u>Research theme 1:</u> Volcanic monitoring of the space <u>Research theme 2:</u> Advanced analysis of space-time data for the recognition of volcanic dynamics 4) Places with scholarship financed by the Italian Institute of Social Security reserved to the children and orphans of users registered with the unitary system of social security credits and the children of retirees registered with the management of public employees: 1 <u>Research theme:</u> Innovative Doctorates "Industry 4.0" ": 5G network and Artificial Intelligence for an evolution toward Industry 4.0 5) Place with scholarship co-financed by the Department of Agriculture, Food and Environment and by the Department of Electric, Electronic and Computer Engineering: 1 <u>Research theme:</u> Smart dairy farming: innovative solutions to improve herd productivity 6) Place with scholarship financed by the Department of Electric, Electronic and Computer Engineering: 1 <u>Research theme:</u> Unsupervised learning methods and models for data in the medical sector



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	<p>7) Place with scholarship co-financed by the Department of Electric, Electronic and Computer Engineering and by the National Institute of Astrophysics – Observatory of Catania: 1 <u>Research theme:</u> AI crossing the borders of Astronomy and Particle Physics: Unsupervised and Explainable Deep Learning Models for Discovery in SKA and DUNE precursors Big Data</p> <p>8) Place with scholarship co-financed by the Department of Electric, Electronic and Computer Engineering, by the Department of Civil Engineering and Architecture and by the Department of Biomedical and Biotechnological Sciences: 1 <u>Research theme:</u> Safe Driving by E-Health Monitoring</p> <p>9) Place with scholarship financed by the Department of Electric, Electronic and Computer Engineering: 1 <u>Research theme:</u> Information theoretical modelling of biological signalling, communication and networks</p> <p>10) Place with scholarship financed by the Department of Electric, Electronic and Computer Engineering: 1 <u>Research theme:</u> Reinforcement Learning Models for Autonomous Robot Traversability and Navigation</p> <p>11) Places with scholarship financed by Enel Green Power: 1 <u>Research theme:</u> Advanced integrated systems of check and monitoring of the performance of photovoltaic modules and systems for the prediction of solar plants lifetime</p> <p>12) Places without scholarship: 1</p> <p>13) Places without scholarship reserved to graduates from foreign universities: 1</p> <p>TOTAL: 19</p>
Selection procedures	<p>1) Evaluation of qualifications 2) Oral examination</p>
Date, place, format and language of the oral examination	<p>Date: September 14 2020 h. 9,00 (9,00 am Italian time) Place: Department of Electric, Electronic and Computer Engineering, viale Andrea Doria, n. 6, Catania Format: - Dissertation on the research project - General knowledge of the themes of the candidate's degree and/or the themes related to the Ph.D. course Language: Italian or English</p>

Ph.D. Course	MATERIALS SCIENCE AND NANOTECHNOLOGIES
Cycle	XXXVI
Scientific area	Mathematics, Physics and Natural Science
Duration	3 years
Department	Department of Physics and Astronomy
Department website	http://www.dsc.unict.it/it/dottorato-scienza-dei-materiali-e-nanotecnologie
Ph.D. Course Coordinator	Prof. Giuseppe Compagnini
Partner Institution(s)	None
Research themes	Materials and nanotechnologies for the environment, energy, health, electronics and photonics
Available places	<p><u>Ordinary places</u></p> <ol style="list-style-type: none"> 1) Places with scholarship financed by the University of Catania: 5 2) Places with scholarship financed by IMM-CNR: 1 <u>Research theme:</u> Nanomaterials for wastewater treatment 3) Places with scholarship financed by CNR and ST Microelectronics S.r.l. within the project "Industrial Doctorates" sponsored by CNR and Confindustria: 1 <u>Research theme:</u> Materials and devices based on wide band gap semiconductors for electronic power 4) Places without scholarship: 1 <p>TOTAL: 8</p> <p><u>Places reserved to graduates from foreign universities:</u></p> <ol style="list-style-type: none"> 1) Places with scholarship financed by the University of Catania: 1 <p>TOTAL: 1</p>
Selection procedures	<ol style="list-style-type: none"> 1) Evaluation of qualifications; 2) Oral examination. <p>Candidates living abroad can take the oral interview in the form of video-conference interview</p>
Date, place, format and language of the oral examination	<p>Date: September 23 2020, h. 9,00 (9 am Italian time) Place: Dipartimento di Scienze Chimiche (Aula A), viale Andrea Doria n. 6, Catania</p> <p>Format:</p> <ul style="list-style-type: none"> - Dissertation on the research project - General knowledge of the themes of the candidate's degree and/or the themes related to the Ph.D. course <p>Language: Italian and English</p>