UNIVERSITÀ DEGLI STUDI DELLA BASILICATA

AREA DIDATTICA, RICERCA E RELAZIONI INTERNAZIONALI
SETTORE SERVIZI ALLA DIDATTICA
UFFICIO POST LAUREAM

PhD PROGRAMS XXXIV CYCLE - ACADEMIC YEAR 2018/2019

PUBLIC ANNOUNCEMENT FOR CANDIDATE SELECTION

RECTOR'S DECREE n. 252/2018

(DEADLINE FOR ONLINE APPLICATION: AUGUST 30, 2018 at 1:00 PM)

INCREASE POSITIONS WITH SCHOLARSHIP
RECTOR'S DECREE n. 257/2018

- The notice of open competition for admission to the following PhD programs for the academic year 2018-2019, XXXIV cycle, with administrative seat at the University of Basilicata, issued by D.R. n. 252 of July 24, 2018, is amended in the part related to the number of positions and scholarships of the PhD program in **"Engineering for Innovation and Sustainable Development"**:

Departement/School	PhD program	Number of total available positions	Positions with scholarship
Department of Sciences	**Applied Biology and Environmental Safeguard**	7	6
Department of European and Mediterranean Cultures: Architecture, Environment, Cultural Heritage	**Cities and Landscapes: Architecture, Archaeology, Cultural Heritage, History and Resources**	11	9
School of Engineering	**Engineering for Innovation and Sustainable Development**	**12**	**10**
School of Agriculture, Forest, Food and Environmental Sciences	**Agricultural, Forest and Food Sciences**	8	7
Department of Human Sciences	**History, Culture and Knowledge of Mediterranean Europe from antiquity to contemporary**	7	5

- 1c card, which is part of Annex 1 to the notice mentioned before, is amended in the sections "Available positions" and "Types of scholarships (Description awarding entity and research topic)", providing an extra position with a scholarship funded by the School of Engineering.

See the notice issued by D.R. n. 252 of July 24, 2018, to which reference is made.

Potenza, July 26, 2018

THE RECTOR
Prof.ssa Aurelia SOLE

ANNEX 1/c

PhD program in: ENGINEERING FOR INNOVATION AND SUSTAINABLE DEVELOPMENT

XXXIV CYCLE – a.y. 2018-2019

Department	**Engineering School (SI-UniBas) - Potenza**
Coordinator	Prof.ssa Aurelia SOLE e-mail: aurelia.sole@unibas.it
Duration	3 years
Web site	http://ingegneria.unibas.it/site/home/offerta-formativa/dottorati-di-ricerca/articolo64.html
Curricula	**1. Methods and Technologies for Environmental Monitoring and Protection** **2. Analysis and prevention of natural risks** **3. Industrial Engineering and Information Technologies**
Aims and topics	The development, implementation and adoption of models of sustainable development requires the convergence of innovative methodologies and technologies covered by different disciplines. Therefore, the main objective of the PhD program is to train researchers of high scientific qualification, capable of contributing to the creation and implementation of innovative development models, efficient, socially sustainable and aimed at the protection of the environment. Future PhDs will be characterized by the ability to integrate specialized expertise with general methodologies and transversal knowledge as well as methodological rigor and sensitivity to application developments. Specialist skills will be acquired in one of the following areas: methods and technologies for monitoring and protecting the environment, methods of analysis, prevention and reduction of natural hazards, management of raw materials, energy systems and industrial production, methods and systems for the treatment and transmission of information. Future graduates will also acquire soft skills in the field of sensors, the satellite platform of tools, modeling and analysis of complex interacting systems and technologies in the public. **Topics of the curriculum "Methods and Technologies for Environmental Monitoring and Protection":** • Sensors and sensing technologies of environmental parameters • Integration and analysis of environmental data • Modelling monitoring, protection and preservation of the environment • Development of strategies and actions for prevention and resolution of environmental problems • Energy saving and distributed micro-generation • Data processing and applications with particular reference to COPERNICUS for environmental monitoring **Topics of the curriculum "Analysis and prevention of natural risks":** • Numerical and experimental approaches for the assessment of seismic vulnerability of structures • Methods and techniques for the mitigation and management of seismic risk • Theoretical and experimental analyses of geotechnical problems • Slope stability and landslide risk reduction • Non-linear analysis of structures • Data processing and applications with particular reference to COPERNICUS for environmental monitoring **Topics of the curriculum "Industrial Engineering and Information Technologies":** • Mechanical engineering design and applied mechanics • Mechanical technologies and industrial plants • Energy conversion systems, Engineering Thermodynamics and fluid flow machinery • Electromagnetism • Devices and systems for telecommunications • Automation and Mechatronics • Applied Physics

<table>
<tr><td>Admission requirements</td><td colspan="3">a) University degree obtained under the previous educational systems (ex ante D.M. 509/99, whose legal course has at least a four-year term);
b) Laurea specialistica/magistrale (D.M. 509/99 and Dm 270/2004);
c) Academic title obtained abroad and eligible for access to the PhD program, previously recognized by academic authorities, even in the context of inter-university cooperation and mobility agreements. In the absence of such approval, the candidate must apply a request in the application form according to the Art. 3 of this call.</td></tr>
<tr><td rowspan="2">Available positions</td><td rowspan="2">12</td><td>With scholarship</td><td>Without scholarship</td></tr>
<tr><td>10</td><td>2</td></tr>
<tr><td rowspan="3">Type of scholarships
(Description awarding entity and research topic)</td><td>Scholarships funded by MIUR</td><td colspan="2"><u>1 scholarship</u> to the Curriculum Analysis and prevention of natural risks</td></tr>
<tr><td>Scholarship funded by Engineering School</td><td colspan="2"><u>1 scholarship</u> to the Curriculum Methods and Technologies for Environmental Monitoring and Protection</td></tr>
<tr><td>Scholarships funded by Regione Basilicata
"Convenzione Dottorati Innovativi con specializzazione in tecnologie abilitanti in Industria 4.0"</td><td colspan="2"><u>1 scholarship</u> to the Curriculum Methods and Technologies for Environmental Monitoring and Protection about the pre-assigned topic "Experimental testing of new technology and innovative devices with low environmental impact for the treatment of polluted water and soils."

<u>1 scholarship</u> to the Curriculum Methods and Technologies for Environmental Monitoring and Protection about the given topic "Use of GALILEO system for applications in the fields of the Earth Observation and Operational Meteorology", in collaboration with Italian Space Agency (ASI)

<u>1 scholarship</u> to the Curriculum Methods and Technologies for Environmental Monitoring and Protection about the given topic "COPERNICUS system improvement through the development of forward/inverse retrieval algorithms for air quality (CO, NH_3, HNO_3, SO_2, NO_2)", in collaboration with Italian Space Agency (ASI)

<u>1 scholarship</u> to Curriculum Analysis and prevention of natural risks about the given topic "Hydrogeophysical modeling finalized to the study and characterization of the fluid flow dynamics in carbonate reservoir", in collaboration with IMAA of Italian Research Council (CNR)

<u>1 scholarship</u> to the Curriculum Industrial Engineering and Information Technologies about the given topic "Systems of aerial manipulators and mobile manipulators for logistics, inspection and maintenance"

<u>1 scholarship</u> to the Curriculum Industrial Engineering and Information Technologies about the given topic "Optimization of propulsion systems by means of CFD techniques"

<u>1 scholarship</u> to the Curriculum Industrial Engineering and Information Technologies about the given topic "Control strategies for reducing energy consumption in production systems"

<u>1 scholarship</u> to the Curriculum Industrial Engineering and Information Technologies about the given topic "Low enthalpy thermal recovery by means of ORC systems" in collaboration with ENEA-Trisaia.</td></tr>
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<table>
<tr><td></td><td></td><td colspan="2">Scholarships require a stage abroad from 3 to 6 months and a company internship from 6 to 12 months.</td></tr>
<tr><td rowspan="2">Positions reserved for graduates in foreign universities</td><td rowspan="2"></td><td>With scholarship</td><td>Without scholarship</td></tr>
<tr><td>0</td><td>0</td></tr>
<tr><td>Positions without scholarship</td><td></td><td colspan="2"><u>1 position</u> to the Curriculum Methods and Technologies for Environmental Monitoring and Protection

<u>1 position</u> to the Curriculum Analysis and prevention of natural risks</td></tr>
<tr><td>Admission procedure</td><td colspan="3">The admission procedure is conducted through the:
a) evaluation of qualifications
b) evaluation of a research project due to the pilot issue of the chosen curriculum, which will be evaluated together with the titles
c) interview</td></tr>
<tr><td>Evaluation criteria</td><td colspan="3">a) evaluation of qualifications: up to a maximum of 40 points
They will be allowed to interview candidates who have achieved a rating of not less than 24 points
b) interview: up to a maximum of 60 points
The interview will be considered passed if the candidates will be given an overall rating of not less than 36 points

Minimum total score: 60 out of 100.</td></tr>
<tr><td>Interview by teleconferencing for candidates residing abroad (please see art. 5 of the Call- Annex D)</td><td colspan="3">Yes</td></tr>
<tr><td rowspan="5">Assessable qualifications</td><td colspan="2">Graduation Thesis
(the candidate must also submit a summary in Italian or English of the thesis of max 16.000 characters)</td><td>Up to 5 points</td></tr>
<tr><td colspan="2">Degree mark</td><td>Up to 20 points</td></tr>
<tr><td colspan="2">Research project
(It must be written in English or Italian, due to the pilot issue of the chosen curriculum, using the specimen in Annex C, and will be assessed in relation to:
degree of innovation compared to the state;
clarity of scientific interests and motivations;
the subject of research knowledge;
degree of sustainability of the proposal, considering the doctoral period.
Maximum length: 16.000 characters)</td><td>Up to 5 points</td></tr>
<tr><td colspan="2">Scientific publications
(Articles in national and international scientific journals , proceedings of scientific conferences, books or book chapters)</td><td>Up to 5 points</td></tr>
<tr><td colspan="2">Other titles
(University degrees or Master Specialization, Research Grants, Scholarships, Erasmus scholarships and periods of activity abroad, …)</td><td>Up to 5 points</td></tr>
<tr><td>Interview program</td><td colspan="3">It can be taken in Italian or English, and will focus, for each curriculum, on relative issues. During the interview the knowledge of the Italian language will be assessed.</td></tr>
<tr><td>Foreign language</td><td colspan="3">English (knowledge of a foreign language will be assessed during the interview)</td></tr>
</table>

Schedule of the admission tests	**Evaluation of qualifications: results will be available from <u>September 18, 2018</u>** on the website http://portale.unibas.it/site/home/didattica/dottorati-di-ricerca.html **Day of the interview: <u>September 25, 2018 - 9:00 a.m.</u>** Classroom Amatucci – Engineering School – Campus di Macchia Romana, 85100 Potenza