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*Empowering the Academic Cooperation between Italy
and Africa for fostering the quality and effectiveness
of the higher education systems
in a mutual learning environment*

TNE23-00050 - CUP D81I24000280007



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Università degli Studi di Milano

Politecnico di Milano

Università degli Studi di Trento

Università degli Studi di Udine

PNRR project

funded by Italian Ministry of University and Research (MUR)

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“Empowering the Academic Cooperation between Italy and
Africa for fostering the quality and effectiveness of the higher
education systems in a mutual learning environment”

CUP: D81I24000280007

Short School

PyGreen – PYthon tools for the GREEN transition



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Call for Application

Article 1

Scope and general information

- 1.1 This short school provides advanced interdisciplinary training with a two-fold goal:
 - to provide an advanced knowledge on the use of Python, an open expanding programming language, for the design and application of cutting-edge ICT tools in different fields of environmental sciences, related to sustainable development;
 - to test and share innovative teaching methodologies, to be fitted to the specific academic context of the participants.
- 1.2 The school is jointly organized by four Italian universities (University of Milano, University of Udine, University of Trento, and Politecnico di Milano), each of which is responsible of a single module:
 - A. Energy accounting and planning (Politecnico di Milano);
 - B. Modelling forest biomass and growth assessment at regional scale (Università degli Studi di Udine);
 - C. Sustainable management of water resources (Università degli Studi di Trento);
 - D. Mapping and modeling groundwater resources (Università degli Studi di Milano).
- 1.3 Modules A and B are mainly designed for early-career academicians, i.e. research or teaching assistants, lecturers, professors, including those who are also pursuing their PhDs, from African universities. Module C and D can be attended also by MSc students. Participants are expected to be working in physical or environmental sciences and/or any engineering fields in the STEM domains, to have good skills in the use of personal computers and of computer programs for scientific and technical applications, and good knowledge of at least one programming language (ex. Python, C++, Matlab or others).



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- 1.4 The following learning outcomes, related to the Dublin Descriptors, are expected:
1. *Knowledge and understanding*: basic knowledge of scientific topics related to environmental sustainability.
 2. *Applying knowledge and understanding*: skills in the development and application of Python scripts to solve problems related to environmental sustainability; skills for team-work in a multidisciplinary context.
 3. *Making judgement*: ability in critical analysis of algorithms and their implementation for environmental sciences and engineering .
 4. *Communication skills*: information exchange in a multidisciplinary context; innovative teaching (learning-by-doing approach, flipped classroom, etc.).
 5. *Learning skills*: ability to read scientific papers, technical reports, books, on line documentation, for further advanced, life-long learning.
- 1.5 In summary, PyGreen aims to offer training based on:
- a. an introduction to Python;
 - b. an introduction to the concept of sustainability and its implementation for the study and management of water and forest resources, and in the field of energetics;
 - c. open modeling and data analytics tools for the conservation and valorization of natural resources and for the energy transition;
 - d. participants' projects;
 - e. a two-days-long follow-up for early-stage researchers and young professors from African universities to discuss the outcomes of the course and further innovations in teaching methods.
- 1.6 The school will be held in Milan, at the premises of Politecnico di Milano and/or Università degli Studi di Milano, with the following tentative time schedule:
- Synchronous remote teaching (for the introductory lectures): December, 9 to 11, 2025.
 - In person participant projects: January, 12 to 16, 2026 (*to be confirmed*).
 - In person (or synchronous remote) discussion with African teachers: January, 19 & 20, 2026 (*to be confirmed*).

The detailed tentative schedule, together with the correspondence of each activity with the four modules, is given in Annex 1.



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Please, note that the participant must arrive in Milan on Sunday 11 of January 2026 and leave not earlier than Wednesday 21 January 2026 to ensure his/her participation to all the programme previewed by the school.

- 1.7 The school will be held in English language. Candidates' proficiency in English language is expected to be at the B2 level of CEFR (Common European Framework of Reference for Languages).
- 1.8 The positions offered are reserved to participants from African universities for which there is an agreement with the organizing universities, as reported in Annex 2.

Maximum number of participants: 5.

- 1.9 . The costs related to the mobility of these participants will be covered through UnItAfrica funding.

Before the beginning of the mobility, if applicable, the participant will receive a gross grant of € 1.500,00 as travel contribution (transfers included) and a gross grant of € 2.800,00 to cover the expenses for accommodation and meals. If, for organizational reasons, travel or other expenses will be covered directly by Politecnico di Milano, the grant received by the participant will be deducted of the amount paid in advance by Politecnico.

As for the accommodation, the school organizers recommend Sunflower Hotel (https://www.hotelsunflower.it/?gad_source=1&gad_campaignid=13059588908&gclid=CjwKCAjwlaTGBhANEiwAoRgXBalemrm5SJdyJJsh4cC49nwOMSekkBIOLANmpx90LBERuxinmFYVsBoCsMQQAvD_BwE) according to its proximity to the university.

Anyway, it shall be at the participant's discretion to decide for accommodation and meals.

Article 2

Eligible profiles of participants

The call is open to early-career academicians, as specified in Article 1, point 1.3. MSc students can be admitted, with the least priority.

Candidates must demonstrate their interest and commitment to the program's subject through a motivation letter and their CV.



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Annex 2 lists the number of places reserved for applicants, whose mobility can be supported by the organizing universities through the UnItAfrica funding. Additional participants and participants coming from other institutions may be requested to pay a registration fee.

A maximum number of 5 applicants will be admitted, with the following order of priority:

- Applicants, whose mobility is supported by the organizing universities (Annex 2);
- Applicants from African universities, that are partner of UnItAfrica;
- Applicants from other African universities, research centers, agencies or institutions;
- Applicants with African nationality and studying or working in Italy, in other EU countries or in other countries outside Africa and the EU;
- Applicants with non-African nationality.

Article 3

Submission of applications

Candidates submit their application via e-mail to innovazione-responsabilitasociale@polimi.it, specifying "Application to PyGreen" in the subject line.: The following documents shall be attached to the application:

- Request of admission, based on the format in Annex 3.
- Self-certification of current enrollment or employment status;
- Copy of valid passport (please verify the expiration date of the document according to VISA regulations);
- CV (in English, academic background, professional experiences, ICT and programming skills);
- Motivation letter (in English) highlighting reasons to participate, expectations from the course and showing the commitment of the candidate to the project (maximum: 600 words);
- Any additional document providing further information that may highlight relevant experience in the field, including certificates of proficiency in English language.

The application deadline for submission is **October 23, 2025**. Applications received beyond this deadline will be automatically rejected.

Incomplete and/or inconsistently filled out applications and/or those who do not meet the required criteria will be considered ineligible.



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Article 4

Selection procedure

Politecnico di Milano secretariat checks that the application is compliant with the requirements listed in Article 2, and if the result is positive, sends the application to the selection committee.

The Selection Committee is composed by:

Prof. Emanuela Colombo - Full Professor at the Department of Energy

Prof. Riccardo Mereu - Associate Professor at the Department of Energy

Doct. Silvia Barattieri – Head of Innovation and Social Responsibility Unit

The Selection Committee is in charge of evaluating each application submitted by the Candidates for selecting those to be invited to participate. The Selection Committee may invite applicants to on-line interviews to assess the level of knowledge of English language, if they do not hold an internationally recognized certificate.

The Selection Committee will draft a final report in accordance with the requirements of this Call, confirming that all submitted applications have been thoroughly reviewed and presenting the list of candidates invited to participate in the short school.

The report will also outline the criteria applied in the selection process.

The majority of the members of the Selection Committee shall be present for the Committee meetings to be considered valid.

If the number of candidates is lower than the number of positions offered, Politecnico di Milano could decide to support eligible candidates selected by the other Italian universities partner of this intensive school.

Article 5

Statement of principle for the candidates' selection

The Selection Committee commits to secure a selection process that is based on equal opportunity without prejudice, regardless of gender, race, religion, age, pregnancy, disability or other personal attributes provided that they do not impair the candidate's professional performance (that is, unable to meet the reasonable and genuine requirements of the position).



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The Selection Committee ensures that the selection process follows documented procedures, with candidates having access to published criteria on eligibility and selection.

Article 6

Criteria for the evaluation and ranking of candidates

The rank list will be formulated by the Selection Committee based on the information provided in the application documentation (Article 3) and on the following criteria:

Criteria	Points
Curriculum vitae	Maximum 10 points
Relevance of the professional and research experiences of the candidate in the fields covered by the school program	Maximum 10 points
Motivational letter	Maximum 10 points
Total	Maximum 30 points

Article 7

Publication of the Call for application and of the results of the evaluation procedure

The list of accepted candidates will be sent through e-mail.

Below is an indicative schedule of the participation of students in the program:

Deadline for the submission of the applications:	October 23
Communication of the results of the evaluation:	November 7

In the event of a withdrawal by selected participant(s), the next candidate(s) on the ranking list (Article 6) will be admitted.

Article 8

Quality assurance

UnitAfrica aims at improving the quality and effectiveness of the higher education systems. For this, quality assurance instruments are fundamental. Therefore, the participants admitted to the course are asked to cooperate on the quality assessment before and after the school.



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Before the start of the school, the participants admitted to the short school are kindly requested to complete the form accessible through the following links and QR codes:

	MSc & PhD students	Early-career academicians
Link	https://forms.gle/FoJfTicKbpJpstJX8	https://forms.gle/VJopSjpYf7Nv2yRo7
QR code		

After the end of the school, the participants will be requested to complete an assessment form, accessible through the following links and QR codes:

	MSc & PhD students	Early-career academicians
Link	https://forms.gle/qUURq2Axq2vTFBXV6	https://forms.gle/Zu14qCQ3arERV7qd8
QR code		

Article 9

Visa

The Visa procedures are entirely the responsibility of the participant. Therefore, the possibility of carrying out the period abroad for selected participants is always subject to the issuance of the Visa by the destination country (Italy). It should be noted that the issuance of a Visa for some countries may be restricted for certain nationalities.



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Article 10

Insurance

The accident insurance and liability insurance provided by Politecnico di Milano can only cover incidents that occur during educational activities. Other medical services, not related to study activities, fall within the sole responsibility of the selected students.

Article 11

Contacts

Any request for clarifications or communication shall be addressed to the School secretariat at innovazione-responsabilitasociale@polimi.it

Article 12

Personal Data

Personal data of the interested parties will be processed in accordance with the principles of correctness, lawfulness, transparency and minimization, for the protection of confidentiality and all the rights of the interested parties, in accordance with the provisions of the European Regulation on the protection of personal data. (EU Regulation 2016/679, so-called GDPR), by the Code regarding the protection of personal data (Legislative Decree 196/2003 and subsequent amendments) and by the consequent implementing measures adopted by the European authorities and by the Guarantor for the protection of personal data (www.garanteprivacy.it).



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Annex 1 – Tentative schedule

Black font – common activities

Red font – activities in small working groups

In parentheses the codes of the modules¹ for which some of the activities are mandatory.

ON-LINE ACTIVITIES

First week	9:00-10:30	10:30-11:00	11:00-12:30	12:30-14:00	14:00-15:30	15:30-16:00	16:00-17:30
Tuesday, December 9	The concept of sustainable development and the role of open source instruments	Coffea break	Introduction to Python	Lunch	Introduction to Python	Tea break	Introduction to Python
Wednesday, December 10	Introduction to Python	Coffea break	Introduction to Python	Lunch	Eco-hydraulics and environmental hydraulics (C)	Tea break	Sustainable Energy Systems and Solutions (A)
Thursday, December 11	Forest resources (B)	Coffea break	Geostatistics and mapping (D)	Lunch	Water resources (C D)	Tea break	

ACTIVITIES ON-SITE Sunday, January 11 Arrival of the participants in Milan

Second week	9:00-10:30	10:30-11:00	11:00-12:30	12:30-14:00	14:00-15:30	15:30-16:00	16:00-17:30
Monday, January 12	Welcome and introduction to the participants' projects	Coffea break	Participants' disciplinary projects	Lunch	Participants' disciplinary projects	Tea break	Participants' disciplinary projects
Tuesday, January 13	Participants' disciplinary projects	Coffea break	Participants' disciplinary projects	Lunch	Participants' disciplinary projects	Tea break	Participants' disciplinary projects
Wednesday, January 14	Participants' disciplinary projects	Coffea break	Participants' disciplinary projects	Lunch	Participants' disciplinary projects	Tea break	Participants' disciplinary projects
Thursday, January 15	Participants' disciplinary or transversal projects	Coffea break	Participants' disciplinary or transversal projects	Lunch	Participants' disciplinary or transversal projects	Tea break	Participants' disciplinary or transversal projects
Friday, January 16	Presentation of the results of participants' projects	Coffea break	Get-together discussion on integrated environmental management	Lunch	Get-together discussion on integrated environmental management	Tea break	Farewell and closing ceremony

Third week	9:00-10:30	10:30-11:00	11:00-12:30	12:30-14:00	14:00-15:30	15:30-16:00	16:00-17:30
Monday, January 19	Introduction to the follow-up (A, B, C)	Coffea break	Open discussion on the results of the participants' projects (A, B, C)	Lunch	SWOT analysis of the applied teaching methods (A, B, C)	Tea break	Brainstorming about innovative teaching methods (A, B, C)

¹ A – Energy accounting and planning; B – Modelling forest biomass and growth assessment at regional scale; C – Sustainable management of water resources; D- Mapping and modeling groundwater resources.



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Tuesday, January 20	Open discussion about the transfer of teaching methodologies to the African context (A, B, C)	Coffee break	Methods to test the effectiveness of teaching (A, B, C)	Lunch	Design of plans for future cooperation activities (A, B, C)	Tea break	Farewell and closing ceremony (A, B, C)
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Annex 2 – Available grants to support mobility costs

For each Italian university which supports the mobility costs, the following table lists the number of available positions and the African Universities from which the participant can submit their application.

Recall that researchers and professors from African universities are eligible for a stay of 11 days in Italy, whereas MSc and PhD students are eligible for a stay of 2 months.

Italian University	Module	Number of grants	Eligible African universities
Politecnico di Milano	A	5 – research or teaching assistants, lecturers, professors, including those who are also pursuing their PhDs	The Nelson Mandela African Institution of Science and Technology (Tanzania) Universidade Eduardo Mondlane (Mozambique) Addis Ababa University (Ethiopia) Strathmore University (Kenya) KNUST – Kwame Nkrumah University of Science & Technology (Ghana) Covenant University (Nigeria)
Università degli Studi di Udine	B	3 – researchers & professors	Université de Dschang (Cameroon) Université de Yaoundé I (Cameroon) Université de Yaoundé II (Cameroon) Jimma University (Ethiopia)
Università degli Studi di Trento	C	5 – researchers & professors, postdocs 5 – MSc & PhD students	University of Zambia (Zambia) University of Namibia (Namibia) Addis Ababa University (Ethiopia)
Università degli Studi di Milano	D		



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Annex 3 – Application form

This form has to be completed, signed and sent as attachment via e-mail to innovazione-responsabilitasociale@polimi.it (see Article 3), together with the other documents.

Box 1: Personal data	
Candidate's name:	
Nationality:	
Date and place of birth:	
Residence address:	
E-mail:	
Phone number:	
Selection of the module ☐ A. Energy accounting and planning ☐ B. Modelling forest biomass and growth assessment at regional scale ☐ C. Sustainable management of water resources ☐ D. Mapping and modeling groundwater resources ☐ No choice	

Box 2: Present position	
☐ Professor ☐ Researcher/Lecturer ☐ Post-doc ☐ PhD student ☐ MSc student ☐ Other, please specify _____	
Study course or working Department	



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University or working company (full address, including State)

Box 3: Document check (all documents should be written in English and sent as attachment via e-mail to innovazione-responsabilitasociale@polimi.it)

- ☐ Application (mandatory)
- ☐ CV (mandatory)
- ☐ Motivation letter (mandatory)
- ☐ Additional documents (optional), please specify

- ☐ English Language certificate (optional)

I confirm that I have been informed and I accept that the above data and the attached documents will be used only for the purposes related to the participation to the short school PyGreen, and will be processed and stored in accordance with the principles of correctness, lawfulness, transparency and minimization, for the protection of confidentiality and all the rights of the interested parties, in accordance with the provisions of the European Regulation on the protection of personal data. (EU Regulation 2016/679, so-called GDPR), by the Code regarding the protection of personal data (Legislative Decree 196/2003 and subsequent amendments) and by the consequent implementing measures adopted by the European authorities and by the Guarantor for the protection of personal data (www.garanteprivacy.it).

Place and date

Signature