

Pan African University PAUWES Institute

Call for Short-Term Academic Staff Academic Positions and Job Descriptions





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Pan African University PAUWES

The Pan African University (PAU) Institute of Water and Energy Sciences (including Climate Change) (PAUWES) is located on the campus of the University of Tlemcen, Algeria. This beautiful Mediterranean city befittingly derives its name from the Berber word for “water springs.”

PAUWES is one of the five hubs of the Pan African University established under the African Union aimed at revitalizing African higher education and at boosting research and postgraduate training. PAUWES is the fourth institute after the Institute of Governance, Humanities and Social Sciences (PAUGHSS) at the University of Yaounde II in Cameroon; the Institute of Basic Sciences, Technology and Innovation (PAUSTI) at Jomo Kenyatta University of Agriculture and Technology in Kenya; and the Institute of Life and Earth Sciences (PAULESI) at the University of Ibadan in Nigeria.

In partnership with the Algerian and German government, the PAUWES Institute offers graduate students access to leading academic teaching, research and hands-on training in areas vital to the future of African development – water, energy and the challenge of climate change.

The institute offers four degree programmes: two Masters of Science in Water engineering and Policy and 2 Master of Science in Energy engineering and Policy. The four of them are full time two-year master’s programmes. The language of instruction is English. The first semester at PAUWES began in September 2014 with 26 students. During last academic year (2015- 2016), PAUWES accepted 48 students and for this academic year PAUWES received 81 new students, today we have 25 nationalities across Africa: Kenya, Ethiopia, Algeria, Rwanda, Burkina Faso, Tanzania, Uganda, Cameroon, Ivory coast, Egypt, Ghana, Mali, Nigeria, Senegal, Zambia, Zimbabwe along other countries duly represented in this truly multi-national cohort of future African leaders

To complement our international faculty we are seeking to fill the following short-term positions at an adequate academic and professional level of teaching, research and instruction.



1. Short-Term Positions

To complement our international faculty we are seeking to fill short-term positions at the level of lecturer.

Tasks and Responsibilities

In addition to teaching, all short-term position holders will also be required to:

- Set and mark examinations in accordance with the Institute regulations and guidelines;
- Carry out all academic duties including interaction with students;
- Support the development and supervision of laboratories as required.

All short-term lecturers will be responsible to the PAUWES Director. The positions that we are seeking to fill are outlined below.

Master of Science in Energy (Engineering Track)

Position 1: Field of Expertise: Energy Conversion and Storage (6 credits)

This course aims to provide a broad overview of the different sources of energy, the different techniques of energy conversion and storage as well as to introduce the power electronics used in energy conversion and control. Energy conversion technologies considered include thermo-chemical, electro-chemical, photo-electric, and thermo-mechanical while energy storage techniques include thermal, electrical, mechanical, electro-mechanical and chemical.

Position 2: Field of Expertise: Energy for Sustainable Development (5 credits)

This course aims to impart knowledge on Africa's energy resources as well as an understanding of how to undertake energy policy formulation including the interpretation of energy policies so as to ensure sustainable use of available resources. The course covers a wide range of energy resources (oil, coal, LPG, natural gas, nuclear, solar, wind, hydro, ocean thermal, tidal, geothermal, biofuels, biogas etc.) and their distribution in Africa. Case studies of typical energy policy statements focusing on the linkages between global and national energy policy objectives are reviewed. Strategies and instruments for policy implementation are discussed from legal, regulatory and commercial perspectives. The candidate should have widespread work, research or teaching experience in different African countries.

Position 3: Field of Expertise: Material Science (4 credits)

The course covers a wide range of topics on material science and engineering starting with the fundamentals of material science, material processing, thermodynamics and kinetics of materials. State-of-the-art knowledge in energy materials is presented including topics on polymers, advanced inorganic materials, hydrides, porous materials and low dimensional solids. The course also covers solar cell fundamentals, solar cells and PV module manufacturing technologies, cell and module efficiencies and characterization. It would be an asset if the candidate has professional in-depth experience in the subject.

Position 4: Field of Expertise: Research Methods for Energy engineering (3 credits)

This course provides an introduction to research methods. It imparts knowledge on how to design research questions and hypotheses. It also teaches basic skills in qualitative and quantitative methods, data collection and analysis, design and structure of experiments. It provides knowledge on research strategies and new generation of instruments and tools for experimentation specific to energy engineering. It imparts knowledge on reporting of research findings including ethical considerations and the validation of results. Innovation, patenting, and technological transfer are also discussed.

Master of Science in Energy (Policy Track)**Position1: Field of Expertise: Policy Analysis for Energy (6 credits)**

The purpose of the Energy Policy Analysis course is to provide an overview of methods of policy analysis applied to the field of energy policy in Africa. Students should be enabled to design meaningful policy options as well as to analyse the specific context in which policy decisions are being made. The course will thus emphasize the “politics”-dimension of policy-making and enable students to give advice and act in different political contexts. Teaching should draw on cases and examples of African energy policy-making in Africa and students should be enabled to take on different roles as advisors to different actors in policy-making contexts – be it on the side of state institutions (ministries, state energy agencies) or on the side of industry, non-governmental-organizations active in the field, or think tanks and research institutions.

Position2: Field of Expertise: Externalities/ Impact Analysis (6 credits)

The purpose of the Externalities / Impact Analysis course is to provide some insight into the best practices of assessing the sustainability of renewable energy technologies (RET), and their respective value chains. It will specifically cover sustainability assessment methods, sustainability assessment best practice and decision analysis tools. Students should be enabled to understand different perspectives of the policy contexts on the continent, in terms of the regulatory, institutional and market settings for Renewable Energy Technology (RET) systems, the importance of a national systems of innovation, how to support emerging RET systems, how RET systems are embedded in national, continental and international energy, economic, and social-ecological systems, how the sustainability of RET systems may be assessed and prioritized, and how appropriate RET systems may be financially supported.

Position3: Field of Expertise: Energy Modelling and Simulation for Policy Analysis (3 credits)

This course has three major components: (1) Students are to learn how to describe the components, dynamics and applications of a system (causal feedback loops and their effects, system behaviour, and real-world applications for systems) (2) Students will learn how to analyse the behaviour of models (examples of equilibrium, homeostasis, and oscillation; model different types of model behaviour, and the influence of delay on a system). (3) Students will design and build a dynamic model of a system (define the purpose and key variables, determine information flows, quantify the flows, determine methods of quantifying soft variables, compare model results to real world knowledge of the system, and refine the model by incorporating additional, relevant information).

Common Course for both tracks of the Master of Science in Energy (Engineering and Policy):

Position 1: Field of Expertise: Energy Economics, Finance & Management (6 credits)

This course aims to impart knowledge and skills for undertaking economic and financial assessment of renewable energy projects as well as an understanding of the fundamentals of financing and the financial disciplines appropriate for running these projects. This will include the discussion of sources and financing mechanisms for renewable energy projects including various green initiatives. The course will also cover preparation of bankable projects, corporate finance as well as capital market operation. The candidate should be a leading expert in Energy Economics, Finance and Management and have a PhD or equivalent in a related subject.

Master of Science in Water (Engineering Track):

Position 1: Field of Expertise: Hydraulics (5 credits)

The course is designed to give the students a solid understanding of hydraulics (open channel hydraulics and flows under pressure), particularly in steady, gradually varied flow, and a basis for the design of free surface systems. After attending this course, a student will be able to describe the various types of flows in open channels, the velocity distribution across and along the channel and hydraulic jumps. The technical lecture (flows under pressure) uses modelling: concepts and methods of computational assisted design are widely used in the projects.

Position 2: Field of Expertise: Soil Conservation (5 credits)

The course confers knowledge about the issues facing soil erosion and sedimentation, their determinants and modelling, land use and technical options for its control as well as the socio-economic factors influencing soil erosion and sedimentation and their implications for water storage, and for the nutrient and carbon processes in soil and water.

Position 3: Field of Expertise: Research Methods for Water engineering (3 credits)

This course provides an introduction to research methods. It imparts knowledge on how to design research questions and hypotheses. It also teaches basic skills in qualitative and quantitative methods, data collection and analysis, design and structure of experiments. It provides knowledge on research strategies and the generation of instruments and tools for experimentation specific to water engineering. It imparts knowledge on reporting of research findings including ethical considerations and the validation of results. Innovation, patenting, and technological transfer are also discussed.

Master of Science in Water (Policy Track):

Position 1: Field of Expertise: Policy Analysis for Water Resources Management (5 credits)

The course confers knowledge about water resource management as a topic of policy analysis and the applicability of the tools of policy analysis to public decision-making in water resource management. It focuses on the actors involved in water policy making and their interests in the various aspects of water use, on the role of governments (and their various layers and organizations) in managing water resources and the instruments at their disposal (water rights, water use restrictions, water resource planning, economic incentives) and on the decision-making procedures and processes in water policy making (parliamentary and ministerial decision-making, delegation to public authorities, public-private cooperation, public participation). Students should be qualified (1) to analyse water policy options with respect to the effect on water use, its economic and social implications, and (2) to analyse specific water policy decisions, reflections the interests of policy actors.

Position 2: Field of Expertise: Databases, Indicators and Statistical Analysis (3 credits)

The course familiarizes students with available databases, especially with respect to ecological concerns, and introduces them to the general requirements associated with data collection. Students will also acquire knowledge about social science research design, explore various methods of qualitative and quantitative data analysis (descriptive, inductive, inferential statistics), learn about the most common mistakes, and they will acquire basic knowledge in the use of statistical software (SPSS or STATA). Beyond those common objects of statistical data analysis students will learn about specific aspects of water related statistical research like trend detection and statistical methods in water resources.

Position 3: Field of Expertise: Geographical Information Systems (3 credits)

Students successfully completing this course should be able to design a GIS application, to understand how various and multiple source data are structured in a GIS software, to know the potential analysis that can be done in various situations to produce useful information to support decision-making in planning, monitoring and management of resources (water, forests, soil, lands) and infrastructures (drinking-water systems, a network of roads and tracks, ...), to choose the type of GIS software to operate according to its needs, and to be aware of the problems associated with the information flow and the reliability of data used in a GIS for the success of its operations.

Common Course for both Masters of Science in Water and Energy (Policy):

Position 1: Field of Expertise: Methods for Policy Research (3 credits)

The course provides an introduction to research methods for policy research. It conveys an understanding of the various decisions and steps involved in crafting (and executing) a research methodology, as well as a critically informed assessment of published research. Students successfully completing the course will be able to understand research terminology and assess published research, to develop research questions that are based on and build upon a critical appraisal of existing research and policy applications, to identify the types of methods best suited for investigating different types of problems and questions, to design a research proposal, to implement a research proposal, to present research results for a policy audience.

Common Courses for both tracks of Masters of Science in Water (Engineering and Policy):

Position 1: Field of Expertise: Hydrogeology (5 credits)

This course is aimed at providing the student with a comprehensive introduction to the most important topics in groundwater hydrogeology. This course will prepare students to analyse ground-water flow processes taking into account aquifer properties, basic hydraulic factors, geologic controls, and their temporal and spatial interactions. Mastery of concepts relies on quantitative analysis.

Position 2: Field of Expertise: Sanitation and Water Treatment (5-6 credits)

The course qualifies students to understand the global and African situation with regard to the issues of excreta, wastewater, and solid waste disposal and comprehend the connection between these processes and health, resource conservation and environmental protection. In addition, it enables students to understand the global and African situation with regard to the issues of water resources and drinking water and its relation to health, resource conservation and environmental protection and to know scientific, technical and engineering principles of drinking water abstraction, distribution and use and factors affecting their efficiency, costs, sustainability and acceptability.

Common Courses for both Master's Programmes:

Position 1: Field of Expertise: DU2-1/ Human Rights and Gender (4 credits)

At the end of this course students will be able to identify and address human rights issues, to assess the effectiveness of various forms of addressing human right issues, to appreciate fundamental and contemporary theories of gender, to relate development scholarship to contemporary gender realities and issues, and to critically analyse the role of gender in development.

Position 2: Field of Expertise: TU2-1 /Communication, Marketing, Networking (2 credits)

This course provides an introduction to networking. Types of networks: social, professional and business networks, use of social media and ICT, sources of contacts for networking, face-to-face and electronic networking, donor supported and self-sustaining networks, voluntary, membership and profit-making networks. Typical weaknesses and strengths, dos and don'ts, managing expectations, sustainability and institutional issues in networking are covered.

2. Required Qualifications and Experience

Mandatory requirements for all short-term positions:

- Must be a full Professor of a recognized University with an earned Ph.D. or an associate professor with minimum 5 years' experience at an institution of higher education in the thematic field
- excellent English language proficiency

Additional criteria are:

- Knowledge of national, regional and international accreditation and quality assurance standards and processes
- Experience of the higher education and research environment in Africa.
- Membership in academic and professional national and international networks;
- Experience in relevant areas of teaching and learning, innovative programme design, academic / research development and support,
- Commitment to supporting the institutional and programme development;
- Knowledge of French and/or Arabic would be an advantage

3. Remuneration of Short-Term Lecturers

Courses are paid as per contact hours, where one credit = 10 contact hours.

Contact hours of courses	Honorarium/hour (US\$)	Subsistence allowance/day (US\$)
20 to 60 hours	80	40

Additionally, health insurance, visa costs and travel expenses will be covered according to PAUWES guidelines.

4. Starting Date and Duration of Contracts

Appointment: During the second semester of the academic year 2016/17(earliest March 2017)

Duration of short-term positions: between two to four weeks depending on work load (credits) allocated, see above. The semester runs from the beginning of March until the end of June 2017.

5. How to Apply

Applications for academic staff positions should be sent to The Pan African University (PAU) Institute of Water and Energy Sciences (including Climate Change) at jobsatpauwes@gmail.com

Please submit (all documents as pdf format):

- Application letter:
 - Stating your motivation
 - making clear reference to advertised position
 - indicating availability between March and June (flexibility is an asset)
 - A short description of the course, content and structure
 - The methods of teaching and interaction with students
 - A short list of prioritized key articles and/or books to be read by the students
 - Prioritized open source key software (if needed) and
 - What kind of laboratories?
- Updated curriculum vitae:
 - personal details
 - education
 - professional experience
 - teaching experience (courses taught, level of courses)
 - number and themes of supervised Master and PhD students
 - proficiency of languages
- list of publications (major publications of last 5 years, books, patents) in the thematic he/she filed his/her application
 - research projects
 - consultancy projects and other assignments
 - Prizes, grants, awards, etc.
 - contact details of three referees
- complete set of copies of academic certificates and testimonials (pdf)

In the framework of the AU Gender Policy, the Pan African University strives for gender equality on all levels and in all university functions to fully use the potential of both, men and women. It would hence like to encourage especially female candidates to apply and join its faculty.

Closing date for applications
11.00 PM (UTC) - 30th November 2016

6. Further Information

For more details on the PAUWES institute, study programmers and job opportunities, please see <http://pauwes.univ-tlemcen.dz/> and www.pau-au.org

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