INSTITUTO DE INGENIERÍA UNAM

Invitation to Apply for a Research Position in Hydrology with a Specialization in Water Management with an Emphasis on Hydrogeology

The Institute of Engineering of the Universidad Nacional Autónoma de México (II UNAM) is the country's longest-established research center in various fields of engineering, with extensive experience in collaboration with the public and private sectors. Since its inception, the Institute's policy has been to conduct research aimed at solving problems in which engineering is fundamental, and to collaborate with public and private entities to improve engineering practice nationwide. II UNAM pays special attention to the training of human resources, the dissemination of its research results, and the generation of original research that contributes to the country's development and the well-being of society.

The growing demand for water, the impact of climate change, and the mismanagement of aquifer systems require innovative approaches and solutions based on science, technology, and engineering to ensure the availability of this natural resource in the future. Therefore, the II UNAM invites applications for a **full-time Associate Researcher C position** for a specific project in the Coordination of Hydraulic Engineering. II UNAM is looking for a researcher with a proactive attitude, expertise in **water management with an emphasis on Hydrogeology**, who will contribute to the generation of innovative knowledge and its application in solving national problems in this field.

Responsibilities

- Conduct cutting-edge research in applied Hydrogeology, quantitative groundwater modeling, and sustainable aquifer management.
- Design and lead field and laboratory investigations to assess groundwater availability, aquifer recharge, and water quality in the saturated zone.
- Apply advanced numerical models to simulate the flow, storage, and transport of contaminants in aquifers, using advanced computing tools, Artificial Intelligence (AI), and the Internet of Things (IoT).
- Publish results in high impact indexed scientific journals (quartiles 1 and 2) and participate in national and international conferences (AGU, EGU, IAH, for example).
- Collaborate with interdisciplinary teams on projects addressing surface water-groundwater interactions, their connection to human activities (agriculture, mining, and hydro-intensive industries, among others), and the effects of climate change on groundwater.
- Obtain external funding through competitive research and technological development proposals.
- Teach undergraduate and graduate classes, as well as supervise thesis at both levels.
- Participate in outreach and collaboration activities with government, industrial, and community sectors to address challenges related to water management and water security.

- Develop innovative strategies and solutions for aquifer conservation and restoration in water-stressed regions.
- Coordinate and execute hydrogeological monitoring and modeling projects with a focus on climate change resilience.

Requirements

1. **Ph.D.** in Geohydrology, Hydrogeology, Engineering, or a related discipline, with demonstrated expertise in numerical simulation of flow and transport processes.
2. As this position is part of the UNAM Subprogram for the Incorporation of for the Incorporation of Young Academicians (SIJA, by its words in Spanish), candidates must be under 39 years of age for women and under 37 years of age for men on the date of incorporation authorized by the UNAM Technical Council for Scientific Research (CTIC, by its words in Spanish).
3. **A minimum of two years of postdoctoral training or equivalent research experience at an academic institution or public/private organization.**
4. Proven scientific productivity, demonstrated through publications in indexed journals with high impact factors (Quartiles 1 and 2).
5. Teaching experience.
6. Proficiency in **numerical modeling** and advanced computational tools, including AI and IoT, for aquifer system management.
7. Proficiency in **technical English** and, for foreign candidates whose native language is not Spanish, a commitment to achieve proficiency in Spanish within two years.
8. Ability to work collaboratively and communicate effectively.
9. Desirable experience in applying artificial intelligence and machine learning tools to hydrogeological studies.
10. Interest in developing an academic career at the Institute of Engineering, UNAM.

Required documents

Applicants must submit in PDF format:

1. Cover letter addressed to Dr. Rosa María Ramírez Zamora, Director of the II UNAM, stating their motivation and interest in applying for the position.
2. Detailed curriculum vitae with supporting documents.
3. One-page resume.
4. Copy of PhD degree and doctoral thesis cover page.
5. Work plan with goals and expected outputs over a 10-year horizon.
6. A list of publications from the last 5 years and their supporting documents.
7. Copy of official document indicating place and date of birth.
8. Three letters of academic reference with contact information.

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9. Research project (maximum 25 pages, Times New Roman 12, 1.15 line spacing) on **a pilot aquifer recharge project under a climate change scenario**, aligned with national and international regulations, including design, modeling, validation, costs, and execution times.
10. Evidence of experience using modeling and data analysis tools in Hydrogeology.

Documents must be sent to Dr. Norma Patricia López Acosta, Academic Secretary of II UNAM (**NLopezA@iingen.unam.mx; SAcademica@iingen.unam.mx**), no later than **October 24 th, 2025**.

At II UNAM, academic excellence is promoted through selection processes based on principles of transparency, impartiality, and professional ethics. These processes are carried out through the integration of collegiate bodies that prevent conflicts of interest and guarantee the objective evaluation of merits. Equal opportunities and respect for gender equity are also ensured, in line with the institutional policies of inclusion and non-discrimination.

Candidates with the best academic records may be invited to an interview to present their research proposal.

For more information, please visit:

- Instituto de Ingeniería UNAM: https://www.iingen.unam.mx/.

Ciudad Universitaria, Mexico City, October 8th, 2025.

THE DIRECTOR

DRA. ROSA MARÍA RAMÍREZ ZAMORA

Note: This position is for a one-year, fixed-term position, renewable based on performance. The decision of the Engineering Institute's Evaluation Committee is final.