

## **The University of Puerto Rico Fellowship Program in Nuclear Structural Engineering**

### **Executive Summary:**

The 4-year fellowship program will support four students to pursue PhD degrees in civil engineering with specialization in the analysis and design of structures of nuclear power plants. The technical training of the fellows will comprise selected structural engineering courses with modified content, student seminars, and dissertation topics relevant to the nuclear structural engineering community. To foster the interaction of the fellows with the nuclear industry and research community, each student will present his/her work at 3 national/international conferences. The Brookhaven National Laboratory (BNL) will help in the training of the fellows by providing guidance and advice to ensure that the final research outcome is of relevance to the nuclear industry. BNL will also host some of the students during one summer, where they will gain practical experience and further enhance the academic training in a different, practical environment. If a student is not able to complete the degree within the 4 years covered by the fellowship, the university will provide an additional year of support.

To achieve the goal of providing upwards of 20% of the US electricity by means of clean nuclear energy by the year 2035, about 30 nuclear power plants are planned for construction. A significant hindrance to the design and construction of these plants is the lack of civil engineers with formal training in their structural analysis and design. The proposed fellowship program will start providing the nuclear industry with highly qualified professionals with the required knowledge and skills to support the structural design and/or certification of nuclear plants. It can serve as a model to further boost the preparation of many more capable engineers. With an almost 100% Hispanic enrollment (40% female), the College of Engineering at UPRM already play an important role in the training of US Hispanic engineers. Therefore, the implementation of the program will enhance the participation and education of students from these underrepresented groups.

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