
Nebraska Nuclear Reactor Safety Training and Workforce Development Program

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Program: Nuclear Reactor Safety Training and Workforce Development Program

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ABSTRACT:

The goal of this Curriculum-Focused Training Program is to strategically establish a consortium of nuclear reactor safety training and workforce development in Nebraska through UNL in collaboration with Nebraska Public Power District (NPPD), Idaho National Laboratory (INL), Southeast Community College (SCC), Asian Community & Cultural Center (ACCC), and industry partners. About 20% of the electricity used in Nebraska is based on nuclear energy. Nebraska has an operating Cooper Nuclear Station and a decommissioned Fort Calhoun Station. UNL is in proximity to the Cooper Nuclear Station, which has over 50 years of operational safety experience since 1974.

To meet the target to triple nuclear energy by 2050 in the USA, it is estimated that approximately 375,000 additional trained technical and non-technical workers will be needed to operate new reactors. The State of Nebraska is interested in building small modular reactors (SMRs) across the state, which will create new economic opportunities. However, there are no established nuclear engineering programs at the University of Nebraska System, resulting in a significant workforce shortage in the industry.

To address this challenge, this project will aim to establish a curriculum-focused training program at UNL with six key objectives: 1) new courses in nuclear engineering; 2) an industry recognized certification in nuclear reactor safety; 3) internship opportunities for undergraduate students at Cooper Nuclear Station; 4) internship opportunities for graduate students at INL; 5) summer camps for middle and high school students at SCC; and 6) outreach and engagement opportunities for underrepresented members of the community at ACCC.

To accomplish these objectives, faculty members at UNL and SCC, industry partners at NPPD, researchers at INL, and staff members at ACCC will collaborate to implement the following tasks:

- UNL and NPPD will jointly develop three new courses to expand a nuclear engineering curriculum where students will learn theoretical knowledge of nuclear reactors and safety.
- NPPD will support UNL to establish an industry recognized certification of nuclear reactor safety for students.
- UNL and NPPD will select 20 undergraduate students for summer internships at the Cooper Nuclear Station for on-site, practical reactor safety training.
- UNL will send 10 graduate students for summer internships at INL for high-level research training regarding nuclear materials and safety.
- SCC will host summer camps for middle and high school students to promote the enrollment of prospective students in the nuclear engineering programs at both UNL and SCC.



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- ACCC will collaborate with UNL to develop outreach programs for underrepresented members of the community in Nebraska including immigrants and refugees and their children who are seeking careers in nuclear energy engineering in the future.

In doing so, this program will establish a foundation for future institutional support for undergraduate and graduate degrees in nuclear engineering at UNL, invest in a pipeline of instructors to teach nuclear engineering courses, and create sustainable long-term partnerships with utilities, nuclear power stations, private industries, and state government to train next-generation nuclear engineering professionals in Nebraska and across the nation.