



# Master of Engineering in Nuclear Engineering



**PennState**  
World Campus

**A world of possibilities.  
Online.**

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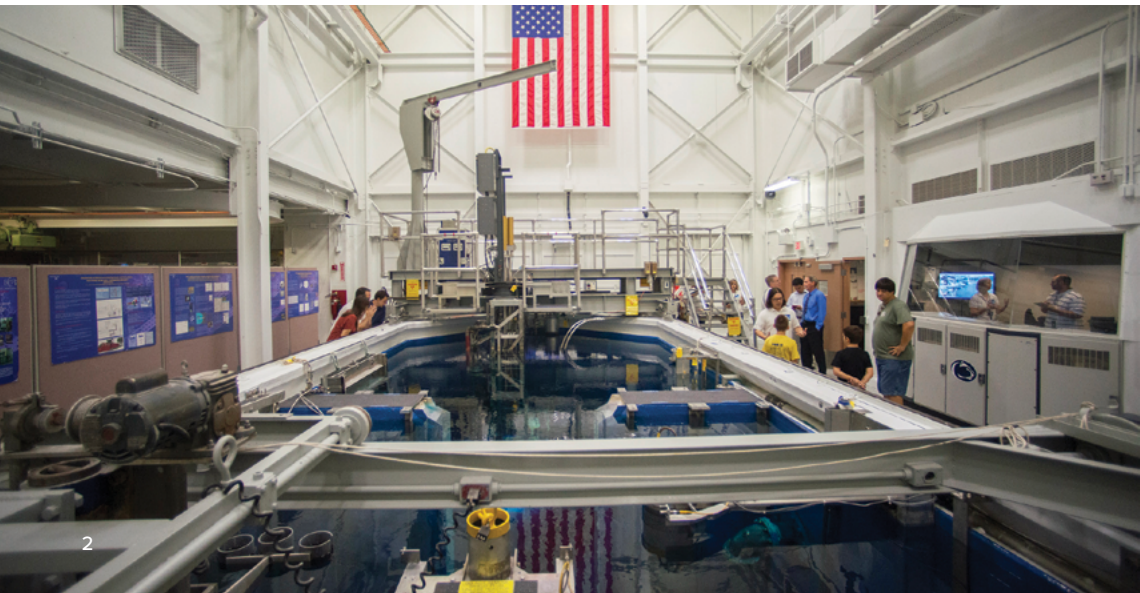
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Penn State's residential graduate program in nuclear engineering has consistently been ranked by *U.S. News & World Report* as one of the best nuclear engineering programs in the country. In fact, Penn State is one of the few universities in the United States to house a research reactor on campus.

Penn State faculty are uniquely qualified to teach the next generation of engineers and professionals. They conduct state-of-the-art research and teaching in both nuclear power (reactor physics and fuel management, reactor kinetics and dynamics, materials, thermal hydraulics, and safety) and in nuclear science (radiation detection, radiochemistry, and a recently created emphasis on nuclear security).

As a Penn State World Campus student, you will work with and learn from the same faculty who teach in our respected residential program.

*Image: Patrick Mansell*



# Why Nuclear Engineering?

By selecting Penn State's online Master of Engineering in Nuclear Engineering program, you are choosing the path that can make you a leader in an exciting and vigorous field of study. Earning a respected engineering degree from Penn State can not only provide you with the skills and practical knowledge you need, but also help you stand out among your peers.

There are many challenges in the safe operation and upkeep of nuclear reactors as well as in the design of the next generation of reactors and nuclear technology. As a nuclear engineer, you will ensure this safety by conducting tests, designing cutting-edge technology, and working with elements that provide power to much of the world.

## Career Opportunities

Whether nuclear engineers are designing, building, or running nuclear power plants; developing nuclear fuel or fusion energy options; or using radioactive materials in industry or medicine, they have a wide range of career paths available to them. Graduates of our program are often employed by electric power utilities, nuclear fuel vendors, or the United States Navy. Some work in industries that use radioactivity or radiation, such as medicine and agriculture.

Nuclear engineers can perform a variety of jobs, including:

- › designing and building nuclear power plants and safety systems
- › performing reactor physics and fuel management calculations for optimal use of nuclear fuel
- › conducting and identifying comprehensive threat assessments
- › designing and operating equipment and facilities for the storage and disposal of radioactive waste
- › operating nuclear-powered submarines and aircraft carriers
- › formulating and designing medical imaging devices for clinical diagnostics
- › designing irradiation systems for medical treatment and for food sterilization



# Curriculum

The Master of Engineering in Nuclear Engineering is a non-thesis professional degree consisting of 27 credits of course work, plus 3 credits of NucE 596: Professional Topics in Nuclear Engineering, which will require you to research and write a scholarly paper about an engineering subject under the supervision of a faculty member.

You can learn to develop and use complex computer models and sophisticated monitoring systems, design systems to handle radioactive waste, determine if materials in a plant are becoming brittle or corroded, manage fuel in a reactor to get the maximum energy from it, or use radioactivity or radiation to detect problems or monitor processes.

In addition to studying the program's core curriculum, you will choose the base program in nuclear engineering or the nuclear security option, which will allow you to tailor your studies to complement your experience, goals, and existing skill set.

Our graduate degree has limited formal course requirements; you and your adviser can tailor the program to meet your specific interests and career goals.

Topics in the nuclear engineering curriculum include:

## **Nuclear Power**

- › nuclear materials
- › reactor systems
- › reactor thermal hydraulics

## **Nuclear Science**

- › radiation detection and measurement
- › radioisotopes and radiochemistry

## **Nuclear Security**

- › nuclear threat assessment
- › radiation detection and monitoring

## Nuclear Security Option

The designated courses in this option will prepare students to become the next generation of technical experts in nuclear and radiological security. You will gain expertise in detecting special nuclear materials and effectively addressing nuclear threats and issues of national and international importance.

[worldcampus.psu.edu/nuce-sec](http://worldcampus.psu.edu/nuce-sec)



# The Penn State Difference

## Faculty Expertise

All of the courses in the online program are designed and taught by Penn State professors. The program's faculty are known for their exceptional credentials, intensive research, and industry experience, all of which help them understand your academic and career interests.

## Learner and Technical Support

You will interact frequently with faculty and other students. Without having to set foot on campus, you will have access to many of the same support services that resident students enjoy, including advising, course scheduling assistance, and technical support.

## Library Services

As a Penn State World Campus student, you will have access to the Penn State University Libraries system, which holds hundreds of online research databases, thousands of scholarly journals (many available online and in full text), and millions of materials including books, eBooks, maps, CDs, DVDs, and more available to you through our online catalog, databases, and document delivery services.



## Networking Opportunities

Interact with dedicated, goal-oriented peers from around the world, creating a network of great ideas. As you communicate regularly with other classmates and faculty members, you'll gain insights that you can immediately apply to your current job.

## A Military-Friendly University

Penn State has the experience you need to help you meet your goals during and after your service to your country. Through our commitment to increasing access to education for military personnel, veterans, and military family members, we have aligned our online programs, student support services, policies, and procedures to address your unique needs. We pledge our best service to you so that, wherever you are in the world, you can be connected to Penn State through Penn State World Campus.



# Frequently Asked Questions

## Why is Penn State the best choice for me?

### **Flexibility and convenience**

Penn State knows that adults need flexible and convenient learning options to continue meeting their professional and personal commitments. As job responsibilities grow increasingly complex and family schedules become more hectic, online education enables you to study at times and locations that are convenient for you.

### **Reputation**

Penn State is universally regarded as one of the finest educational institutions in the United States. Putting a Penn State degree or certificate on your résumé is a great way to broaden your career options and prove to current and potential employers that you are a well-educated professional.

### **Accreditation**

Penn State is accredited by the Middle States Commission on Higher Education and has an outstanding reputation as a research and teaching university. Our courses are also accepted by most other colleges and universities in fulfillment of their requirements.

### **Is this the real Penn State?**

Absolutely. Penn State values online education as highly as it does resident instruction. No distinction will be made on your official Penn State transcript or degree that your courses were completed at a distance. The credits you receive are exactly the same as those awarded to on-campus students.

# Begin Your Application Today

Admissions decisions for the master's degree in nuclear engineering are based on a review of your complete application portfolio and the quality of your credentials relative to those of other applicants.

Your master's degree application portfolio must include:

- › online application form and fee
- › copy of official transcript from each undergraduate and graduate institution attended
- › TOEFL or IELTS score, if applicable
- › three references
- › résumé
- › one- to two-page statement of purpose



To apply or for more information about these application materials and deadlines, visit: [worldcampus.psu.edu/nuce](http://worldcampus.psu.edu/nuce) or [worldcampus.psu.edu/nuce-sec](http://worldcampus.psu.edu/nuce-sec)

## Did You Know?

- › Penn State credits and degrees earned online are identical to those earned on campus.
- › Penn State World Campus has enrolled students from all 50 states and all 7 continents.
- › Our online courses involve frequent interactions among students and faculty.



# Contact Us

## Admissions Questions

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