UNM | Office of Career Services

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WHAT CAN I DO WITH A MAJOR IN … NUCLEAR ENGINEERING

OCCUPATIONAL SUMMARY:

The UNM Department of Chemical and Nuclear Engineering (2013) describes the field of nuclear engineering as "an exciting, rapidly-evolving field which requires engineers with an understanding of physical processes of nuclear energy and an ability to apply concepts in new and creative ways. Nuclear engineers are primarily concerned with the control, monitoring, and use of energy released in nuclear processes."

The department goes on to explain that, "some nuclear engineers work on the design and safety aspects of environmentally-sound, passively safe nuclear fission reactors. Others are looking to future energy solutions through development and implementation of nuclear fusion systems. Others are helping in the exploration and utilization of outer space by developing long term, reliable nuclear energy sources. With the renewed concern in environmental science, nuclear engineers are working on safe disposal concepts for radioactive waste and on methods for reduction of radiation releases from industrial facilities. They also work in developing a wide variety of applications for radioisotopes such as the treatment and diagnosis of diseases, food preservation, manufacturing development, processing and quality control, and biological and mechanical process tracers. For each of these fields there are numerous opportunities for nuclear engineers in basic research, applications, operations, and training."

EMPLOYMENT REQUIRMENTS:

The Bureau of Labor Statistics (2012) explains that a bachelor's degree in nuclear engineering is the minimum formal education required to work as a nuclear engineer. BLS further explains that many employers value practical experience, making it important for nuclear engineering students to participate in internships and Co-ops while completing their degree. BLS also notes that a graduate degree (M.S., M.E., and/or Ph.D.) is required to hold positions in research or academia. Regarding licensure, BLS highlights that a Professional Engineering (PE) Licensure is not required to work in nuclear powerplants, though nuclear engineers are eligible for a PE license. BLS explains that nuclear engineers interested in operating a nuclear power plant can pursue a Senior Reactor Operators License. Please talk with faculty and industry representatives if you are interested in the SRO career path. Consult O*Net for more information on the specific KSAs (Knowledge, Skill, Ability) that are required for this career.

THE UNIVERSITY OF NEW MEXICO:

The UNM Department of Chemical and Nuclear Engineering offers a Bachelor of Science (B.S.N.E.) in Nuclear Engineering, a Master of Science (M.S.) in Nuclear Engineering, and a Doctor of Philosophy (Ph.D.) in Engineering with a Nuclear Engineering concentration. Check the department website for more information on degree programs and research areas. The College of Engineering also offers various other degree tracks such as the Master of Engineering and the 2 + 3 B.S. & Master of Business Administration program. More information on these programs can be found in the University Catalog by selecting "Colleges" on the right and selecting "School of Engineering".

INDUSTRIES & TARGET EMPLOYERS:

A variety of employers specifically recruit UNM students and alumni. Consult UNM's Lobo Career Connection for a complete list of employers and current job postings. Speak with a Career Development Facilitator at the UNM Office of Career Services for help with identifying employers or additional resources for your occupation of choice.

Business/Industry
Food processing, nuclear power plants, radiation physics, health physics, environmental, consulting, development, project management, fuels and energy, materials, manufacturing plants, sales, waste management

Government
Federal, national and local government agencies, Department of Energy, Department of Defense, Environmental Protection Agency, research, national laboratories

Education
University/college instruction, researcher

SUGGESTED STRATEGIES:

- Gain related nuclear engineering or general engineering professional experience through involvement in internships, student employment, Co-ops, research, and/or volunteer opportunities.
- Shadow professionals in the field to gain a better understanding of the occupation and to build relationships with professional mentors.
- Build your network and get involved on campus through student organizations and campus events. The School of Engineering website outlines student organizations that are affiliated with the School of Engineering as well as the Chemical Engineering department. You can find more organizations and events at the Student Activities Center website.
- Attend career-related campus events such as career fairs, company information sessions, and or career workshops.
- Students who are interested in graduate school should maintain a high undergraduate GPA, develop relationships with faculty, and participate in undergraduate research. UNM's Research Opportunity Database at http://research-match.unm.edu/. Some research opportunities include
    - Ronald E. McNair Scholars Program
    - Research Opportunity Program (ROP)
    - Minority Access to Research Careers Program (MARC)
    - Initiative for Maximizing Student Development (IMSD)
    - Undergraduate Pipeline Network
    - UNM Engineering Research Centers
    - Research at the University of New Mexico
- Speak with mentors and faculty about career opportunities.
- Job leads can be found on your department's website, list-serv, newsletters, and social media sites.
- Familiarize yourself with the federal job application process.

STATE & NATIONAL WAGES:

Adapted from CareerOneStop (2013)

NUCLEAR ENGINEER

Location	2012				
	10%	25%	Median	75%	90%
United States	$69,900	$85,300	$104,300	$122,800	$149,900
New Mexico	$59,100	$76,300	$107,900	$137,300	$162,000

INFORMATIONAL WEBSITES:

American Nuclear Society	http://www.ans.org/
Alpha Nu Sigma Honors Society	http://www.ans.org/const/ansnhs/
American Physical Society	http://www.aps.org/
American Academy of Health Physics	http://www.hps1.org/aahp/
Health Physics Society	http://www.hps.org/
Institute of Nuclear Materials Management	http://www.inmm.org/
Nuclear Energy Institute	http://www.nei.org
North American Young Generation in Nuclear	http://naygn.org/
Women in Nuclear	http://www.winus.org/

REFERNCES:

Bureau of Labor Statistics, U.S. Department of Labor, (2012, April 10). *Occupational Outlook Handbook*, *Nuclear Engineers*. Retrieved from http://www.bls.gov/ooh/architecture-and-engineering/nuclear-engineers.htm#tab-4

State of Minnesota, U. S. Department of Labor, Employment and Training Administration (2013). *CareerOneStop, Occupation Profile, Nuclear Engineer*. Retrieved from www.careerinfonet.org

University of New Mexico, Department of Chemical and Nuclear Engineering (2013). *Department of Chemical and Nuclear Engineering*. Retrieved from http://www-chne.unm.edu/