Nuclear Engineering

http://www.me.iastate.edu/students/degrees-and-programs/engineering-minors/ Minor administered by Mechanical Engineering

The nuclear engineering undergraduate minor allows engineering students to acquire a formal background in nuclear engineering topics that will not only benefit them, but also fulfill a societal need for future hiring of engineers. Through this program, students can enroll in a formal minor that enables them to acquire a basic and fundamental knowledge of nuclear sciences and engineering, thus enabling them to pursue employment in any one of a number of fields associated with the construction, operation or regulation of nuclear power generation.

Students completing this minor acquire a body of knowledge in the fundamentals of nuclear science and engineering. The required courses selected ensures that all graduates of the nuclear engineering minor obtain a minimum body of knowledge in nuclear science and engineering that would allow them to apply their specialized field of engineering knowledge to nuclear-related applications, such as nuclear plant and site construction, nuclear power plant operations, nuclear safety and radiation protection.

The supporting courses that are listed in this program provide an opportunity for students to build upon the knowledge gained in the required courses by taking either more advanced courses or more specialized courses dealing with specific areas of nuclear engineering.

Undergraduate Study

Students interested in completing the nuclear engineering minor must be enrolled in the College of Engineering at Iowa State University. They should complete and submit the “Request for Minor” form. The selection process is based on approval by the administering department, Mechanical Engineering.

The course requirements for the undergraduate minor in nuclear engineering are:

Required course:

NUC E 401 Nuclear Radiation Theory and Engineering 3

Four of the following: 12

NUC E 402 Nuclear Reactor Engineering
NUC E 405 Radiation Protection and Shielding
NUC E 410 Nuclear Reactor Theory
NUC E 411 Nuclear Reactor Analysis
NUC E 441 Probabilistic Risk Assessment
NUC E 461 Radiation Detection, Measurement and Simulation
NUC E 490 Independent Study

The minor must include at least nine credits which are beyond the total used to meet curriculum requirements for the bachelors degree in engineering.

Nuclear engineering courses are provided through an inter-institutional distance education program offered through the Web. Some of the courses that comprise this minor are offered at Iowa State University, while others are offered through four of the Big 12 Engineering Consortium universities that have formal nuclear engineering departments or programs. The four universities offering an assortment of nuclear engineering courses via web-based distance education are Texas A & M (TAMU), the University of Missouri Columbia (UMC), Kansas State University (KSU) and the University of Texas at Austin (UTA).

Courses primarily for undergraduates:

(3-0) Cr. 3. Prereq: PHYS 222, MATH 266 or MATH 267

NUC E 402. Nuclear Reactor Engineering.
(3-0) Cr. 3. S. Prereq: NUC E 401