

Minor in Nuclear Engineering

About This Program

Nuclear energy plays a key role in generating clean and reliable electric power. There is a demand to fill the shortage of engineers in existing nuclear power plants and to work with innovative and exciting design concepts of the next generation of power plants. The Minor in Nuclear Engineering will add value to an engineering degree for students planning to enter the energy-related workforce or seek an advanced degree in engineering.

The minor is available to all undergraduates who have the necessary prerequisites.

Competencies

1. Upon completion, students will be able to understand nuclear and atomic structure, radioactivity, radiation decay, nuclear reactions, applications of nuclear science and engineering on nuclear energy systems based on both fission and fusion nuclear reactions, with applications in the industrial and medical fields.
2. Upon completion, students will be able to apply their understanding of the theoretical aspect of reactor theory and analysis to nuclear reactor systems, major components, operations, control and the overall safety aspect of nuclear power plant technology.
3. Upon completion, students will be able to apply knowledge of fluid flow and heat transfer to analyze heat generation and removal at a specific location, a fuel rod, a reactor core, and for reactor core shielding, and then use this knowledge for a nuclear reactor thermal core design.

Curriculum

Foundations

NE 3301	INTRODUCTION TO NUCLEAR ENGINEERING	3
NE 4302	NUCLEAR REACTOR THEORY AND TECHNOLOGY OF THE NUCLEAR POWER PLANT	3
NE 4303	NUCLEAR POWER PLANT ENGINEERING	3

Electives

Select three of the following (with a grade of C or better in each): 9

MAE 3311	THERMODYNAMICS II
MAE 3309	THERMAL ENGINEERING
MAE 3314	HEAT TRANSFER
MAE 4347	HEAT EXCHANGER DESIGN
MAE 4310	INTRODUCTION TO AUTOMATIC CONTROL
EE 3302	FUNDAMENTALS OF POWER SYSTEMS
EE 4314	CONTROL SYSTEMS
PHYS 3446	NUCLEAR AND PARTICLE PHYSICS

Total Hours 18

Program Completion

Students must complete the foundations and elective courses with a grade of 'C' or better in each.