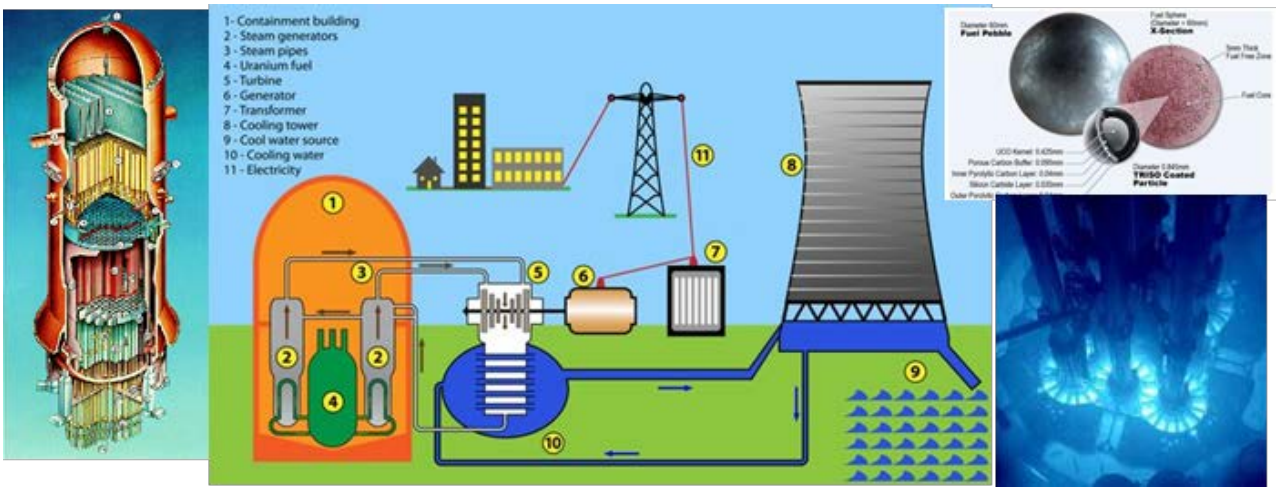
New Online Course Spring 2020

PURDUE UNIVERSITY | Nuclear Engineering COLLEGE OF ENGINEERING

Nuclear Engineering Systems- NUCL 50200

An Introductory Graduate Course on Nuclear Power Plant



- *Course welcomes graduate students from all engineering, physical sciences and technology interested in learning about nuclear power plants*
- *Can be used as Technical Elective course*
- *Two section- distance online and in-class room lectures for on campus students*
- *Key issues including reactor accidents, nuclear fuel cycle-waste, and role of nuclear in the clean energy generation and environment are addressed*

Course Description

This is an **online 3-credit course** covering science and engineering aspects of nuclear power plant system. Topics covered include, type of nuclear plants and their components, operational principles, kinetics and control, reactor materials of construction; nuclear fuel and fuel cycles; radiation dose and shielding; heat removal; reactor heat removal, plant balance, thermalhydraulics and safety, and economics.

Course Goals

a. To acquire knowledge on nuclear power plant components and systems, designs, principle of operation, control and safety. Develop understanding of the engineering and physical principles of a reactor including neutron transport, kinetics, thermodynamics, thermalhydraulics, materials, fuels, radiation, shielding and safety. To overview nuclear fuel cycle and waste management.

b. To apply knowledge of mathematics and physics to the design of nuclear power plant engineering systems. To understand the design principles and develop a quantitative and qualitative foundation of nuclear reactor power plants and related systems.

- An individual design project is included
- Course slides are provided for each class

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