THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Neutron Slowing Down and Thermalization

NUCLREN 7865

Credit Hours:
3.00 - 3.00

Course Levels:
Graduate

Course Components:
Lecture

Course Description:
Neutron slowing down in infinite and finite media, thermal spectrum calculations, and cell calculations in heterogeneous core lattices.

Prerequisites and Co-requisites:
Prereq: 6708, 704, 705, or 708; or permission of instructor.

Course Goals / Objectives:
- Understand the physical processes involved in neutron slowing down and thermalization
- Develop working skills with the mathematical models used for determining the fast and thermal neutron spectra
- Be familiar with the practical aspects of few-group diffusion parameter generation

Course Topics:
- Neutron slowing down in an infinite hydrogenous medium
- Neutron slowing down in an infinite medium with A>1
- Resonance absorption
- Derivation of the P1 equations
- Approximate treatment of neutron slowing down infinite media
- General features of thermal neutron spectra
- Approximate models of neutron thermalization
- Lattice effects in reactor analysis

Designation:
Elective