



AL IMAM MOHAMMAD IBN SAUD ISLAMIC UNIVERSITY
COLLEGE OF ENGINEERING
Department of Mechanical Engineering

Course Information	
Course Code and Name:	ME 445 Introduction to Nuclear Energy
Credit Hours:	3 (3 Lecture + 1 Tutorial)
Prerequisites:	ME 323 Thermodynamics II

Course Description
Introduction to the fundamentals of nuclear engineering, including power plant design fuel cycle and fuel design. Reactor physics, reactor theory and design and reactor thermo-hydraulics. Radiation protection and safety. Fuel reprocessing and recycling.

Textbook			
Title	Nuclear Energy: An Introduction to the Concepts, Systems, and Applications of Nuclear Processes		
Authors	Raymond Murray, Keith E. Holbert		
Publisher	Butterworth-Heinemann	Year and Edition	7 th ed. Available in hard cover and as e-textbook.

Course Contents
Radioactivity and radioactive materials
Nuclear fission and fusion reactions
Particle accelerators and isotope separators
Neutron chain reactions and reactor types
Breeder and Fusion reactors
Reactor safety
Nuclear waste disposal

Academic Coordinator Dr. Syed Muhammad Fakhir Hasani	Signature
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