



Jordan University of Science and Technology
Faculty of Engineering
Nuclear Engineering Department

NE451 Nuclear Power Plant Systems & Operations (1)

First Semester 2019-2020

Course Catalog

3 Credit Hours. Description of light water power plants systems, NSSS system, secondary systems, reactor safety systems, plant layout, steam cycles, electrical, mechanical, and nuclear system components, practical aspects of NPP system operation.

Text Book

Title	Nuclear Engineering Handbook
Author(s)	Kenneth D. Kok (Editor) 2009
Edition	2nd Edition
Short Name	Ref#1
Other Information	

Instructor

Name	Dr. Abdullah Alali
Office Location	-
Office Hours	Sun : 10:30 - 11:30 Sun : 11:30 - 12:30 Tue : 10:30 - 11:30 Tue : 11:30 - 12:30 Wed : 08:30 - 09:30 Thu : 11:30 - 12:30
Email	aealali@just.edu.jo

Class Schedule & Room

Section 1:
Lecture Time: Sun, Tue, Thu : 09:30 - 10:30
Room: E2113

Prerequisites		
Line Number	Course Name	Prerequisite Type
2003400	NE340 Nuclear Reactors Theory	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2	Introduction	CH1 From Ref#1
Weeks 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13	Pressurized Water Reactor	CH2 From Ref#1
Weeks 14, 15	Boiling Water Reactor	CH3 From Ref#1

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Understand engineering principles associated with systems and components used in two types of commercial nuclear power plants. [11]	15%	first exam, second exam, quizzes, final exam
Become familiar with basic principles of the design and operation of various PWR Plant systems and components, including the primary system, reactor vessel, reactor core, reactor coolant pumps, steam generators, emergency core cooling system, and auxiliary systems. [41, 14]	37%	first exam, second exam, quizzes, final exam
Understand the operation of the PWR plant during start up, shutdown and other important evolutions. [41, 14]	33%	first exam, second exam, quizzes, final exam
Understand the design and operation of various BWR systems and components, including, the reactor vessel, reactor core, control rods, recirculating system, and reactor water cleanup system. [41, 14]	15%	quizzes, final exam

Relationship to Program Student Outcomes (Out of 100%)						
1	2	3	4	5	6	7
83			17			

Evaluation	
Assessment Tool	Weight
first exam	25%

second exam	25%
quizes	10%
final exam	40%

Date Printed: 2020-01-06