

NRE 4770 Nuclear Chemical Engineering (Elective)

Catalog Description: NRE 4770 Nuclear Chemical Engineering (3-0-3)

Prerequisite: None

This course surveys the chemical engineering aspects of nuclear power. Topics include nuclear reactions, fuel cycles, solvent extraction of metals, the properties of actinides and other irradiated fuel materials, fuel reprocessing, and radioactive waste management.

Textbook: Benedict, Pigford and Levy, Nuclear Chemical Engineering, McGraw-Hill, 2nd edition (1981)

Topics Covered:

- 1.) Nuclear reactions
- 2.) Fuel cycles
- 3.) Solvent extraction of metals
- 4.) Properties of actinides
- 5.) Properties of other irradiated fuel materials
- 6.) Fuel reprocessing
- 7.) Radioactive waste management

Course Outcomes:

Outcome 1: To introduce students to the chemical engineering aspects of nuclear power at an undergraduate level.

- 1.1 The student will acquire a working understanding of the range of technical topics that constitute the chemical engineering aspects of nuclear power.

Correlation between Course Outcomes and Program Educational Outcomes:

NRE 4770 Nuclear Chemical Engineering	Outcome a			Outcome b	Outcome c	Outcome d	Outcome e	Outcome f	Outcome g	Outcome h	Outcome i	Outcome j	Outcome k
	i	ii	iii										
Course Outcomes													
Course Outcome 1.1			x			x	x		x	x		x	

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