

NRE 4430 Nuclear Regulatory Requirements (Elective)

Catalog Description: NRE 4430 Nuclear Regulatory Requirements (2-0-2)
 Prerequisite: NRE 3316
 This course introduces regulatory organizations and delineates their jurisdictions. It covers the fundamentals of regulations, the impacts on occupational workers, the public and the environment.

Textbook: 10 CFR, Volume I and II

Topics Covered:

1. Regulatory agencies (structure, legal standing, responsibilities) (NRC, EPA, OSHA, State, DOT, FDA)
2. National/international committees (e.g. ICRP, NCRP, IAEA, NAS, IRPA, NAE, etc.)
3. Administrative rules (10 CFR 16) (e.g. hearings, violations, fines, claims, enforcement)
4. Radiation protection rules (10 CFR 19-20, 29 CFR, 49 CFR, 40 CFR) (workers and the general public)
5. Licensing (10 CFR 30-39) (general, specific, broad, medical, source)
6. Reactors (10 CFR 50-55, 70) (licensing, surety, SAS, site criteria)
7. Transportation (49 CFR) (e.g. casks, packaging, shipping, documentation)
8. Environment (40 CFR 141, 40 CFR 196, 40 CFR 61, 40 CFR 300)
9. Industrial hygiene (29 CFR)
10. Irradiators
11. X-rays and accelerators
12. Radioactive waste (10 CFR 60, 61, 72; 40 CFR 191 & 192) (High level/low level/compacts/norm/mixed/spent fuel)
13. Medical radioactive material
14. Security (10 CFR 37, 95)
15. Emergencies (10 CFR 62) (planning, implementation, drills)
16. Decommissioning (plan, operations)

Course Outcomes:

Outcome 1: To facilitate effective communication between regulators and users, delineate Federal and State agencies and industry responsibilities and differentiate between laws, regulations, recommendations, rules and guidelines.

- 1.1 Students will demonstrate that they have general understanding of regulatory organizations and their jurisdictions.
- 1.2 Students will demonstrate that they can distinguish among laws, regulations, recommendations, rules and guidelines.
- 1.3 Students will demonstrate that they have become familiar with the regulations promulgated by one or two regulatory agencies.
- 1.4 Students will demonstrate that they understand the rationale used to develop the regulations referred to in 1.3.

Correlation between course outcomes and program educational outcomes

NRE 4430 Nuclear Regulatory Requirements	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	i	ii	iii										
Course Outcome 1.1								X	X	X		X	
Course Outcome 1.2								X	X	X		X	
Course Outcome 1.3		X					X	X	X	X	X	X	
Course Outcome 1.4		X						X	X	X		X	

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