NUC K230 Nuclear Topics

☒ Required ☐ Elective

Catalog Description: A state-of-the-art survey course studying factors impacting modern nuclear power generation, including environmental impacts, fuel management, preventative maintenance, equipment operation, failure and analysis, safety engineering, human factors engineering, and emergency planning procedures. Additionally, an overview of other regional nuclear related business activities will be presented.

Prerequisites: NUC K100, NUC K110/111, NUC K117, NUC K118, NUC K260/261

Textbook(s) or other materials: Handout(s) by guest lecturers

Course learning outcomes/Expected performance criteria:

The purpose of this course is to have the student gain a thorough appreciation for the numerous factors which are necessary for the successful, safe generation of nuclear power. Course presentation centers on a series of lectures from nuclear-related industry speaking on aspects of: 1) nuclear power and its interaction with the environment; and 2) the technical problems encountered in the generator of electrical power from nuclear fuel. Similarly, guest lectures from other nuclear science and nuclear engineering industries acquaint the student with the full spectrum of nuclear-related business in our region.

Topics covered:

COURSE TOPICS/CONTENT

| | | HOURS |
|---|---|---|
| 1. | Environmental Issues | 3 |
| 2. | Fuel Management | 3 |
| 3. | Turbine-Generator Theory and Problems | 3 |
| 4. | Component Failure and Analysis | 3 |
| 5. | Steam Generator Related Problems | 3 |
| 6. | Emergency Planning | 3 |
| 7. | Plant Licensing and Construction Process | 2 |
| 8. | Quality Assurance Program | 2 |
| 9. | Outage Management | 2 |
| 10. | Power Distribution Systems | 2 |
| 11. | Nuclear Waste Disposal | 2 |
| 12. | Nuclear Facility Insurability | 2 |
| | TOTAL HOURS | 30 |

Class/Lab schedule: 2 lecture sessions per week

Relationship of course to Criterion 5 and Program Outcomes:

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