

Syllabus for the College of Engineering

ENU4930: Introduction to Nuclear Criticality Safety

1. **Catalog Description (including credit hours)** –Presentations, discussions, and exercises on nuclear criticality safety (3 credits)
2. **Pre-requisites and Co-requisites:** Junior/senior standing in Nuclear Engineering
3. **Course Objectives** - This course is intended to introduce the concepts and practices of Nuclear Criticality Safety to students. The class will discuss the parameters impacting NCS, standards and regulatory guidance, and the Double Contingency Principle. A history of criticality accidents will be provided, and the causes examined. Students will be exposed to and use various computer codes that may be used for NCS analyses. The class will perform operational reviews, and, building on class exercises related to the aforementioned topics, will complete a class project that analyzes a simulated facility in need of NCS controls.
4. **ABET Program Outcomes Supported by Course:**
Outcome a: an ability to apply knowledge of mathematics, science and engineering for problem solving in engineering.
Outcome e: an ability to identify, formulate and solve engineering problems.
Outcome l: an ability to apply advanced mathematics, science, atomic and nuclear physics and engineering to nuclear and radiological systems and processes.
5. **Instructor:** Katherin L. Goluoglu
 - a. Office location – Nuclear Sciences Building Rm 232
 - b. Telephone - TBA
 - c. E-mail address- klgoluoglu@mse.ufl.edu
 - d. Class Web site - TBA
 - e. Office hours – By appointment
6. **Teaching Assistant** – N/A
7. **Meeting Times:** MWF Period 4
8. **Meeting Location:** FLG 280
9. **Material and Supply Fees:** None required
10. **Textbooks and Software Required:** None- course notes are developed by the instructor
11. **Course Outline:**
 - a. NCS Standards and regulatory guidance/requirements
 - b. Nuclear parameters and common control schemes
 - c. Double Contingency Principle
 - d. Criticality accident history
 - e. Contingency analyses

- f. Operational aspects
- g. Practical exercise

12. **Attendance and Expectations:** Attendance is required and is a partial basis for your grade. Only documented, UF-sanctioned reasons (e.g., medical emergency, religious observance) will be accepted. Cell phones and other electronic disruptions will lead to ejection from the room and being counted as absent.

13. **Grading:** Attendance: 10%, Homework and quizzes: 20%, two Midterm Exams/Projects: 25% each, Final Exam/Project: 20%

14. **Grading Scale:** 92.0%+: A; 90.0-91.9%: A-; 87.0-89.9%: B+; 83.0-86.9%: B; 80.0-82.9%: B-; 77.0-79.9%: C+; 73.0-76.9%: C; 70.0-72.0%: C-; 67.0-69.9%: D+; 63.0-66.9%: D; 60.0-62.9%: D-; 59.9% and lower: E

A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit:
<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Graduate students need an overall GPA of 3.00 truncated and a 3.00 truncated GPA in their major (and in the minor, if a minor is declared) at graduation.” For more information on grades and grading policies, please visit:
<http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907#grades>

15. Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at:
<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

16. **Honesty Policy:** All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

Note that failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures.
See <http://www.dso.ufl.edu/sccr/procedures/honorcode.php>

17. **Accommodation for Students with Disabilities:** Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

18. **UF Counseling Services:** Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
- UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
 - Career Resource Center, Reitz Union, 392-1601, career and job search services.
19. **Software Use:** All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.