

Syllabus
ENME 431 Nuclear Reactor Systems and Safety
All Sections
Spring 2015

Course Information

Location and Time

Classroom: JMP 2121
Time: MW 2:00pm – 3:15pm

Instructor Information

Instructor: Dr. Robert C. Sanders
Office: 3109A Martin Hall
Email: rsanders@umd.edu
Phone: 443-804-6485
Office Hours: MW 12:30pm – 1:30pm, or by appointment

ELMS Site

ENME431 All Sections – Spring 2015: Nuclear Reactor Systems and Safety

Required Textbook

None.

Required Technology

All students are required to have a calculator.

Communications

Communications outside the classroom will be via email and/or the ELMS site.

Emergency Protocol

In the event of an emergency that closes the university for an extended period of time, lectures, homework assignments and exams will be posted on the ELMS site. Students will provide the instructor with completed homework assignments and exams via email.

Course Description, Goals and Expectations

Course Description

ENME 431 presents the major fluid systems used in nuclear reactor power plants, including the bases for the designs of these systems. The emphasis is on auxiliary and safety systems; however, primary coolant systems are also discussed. Systems used in existing nuclear power plants are presented, as well as proposed systems for advanced nuclear power plant concepts. Major components used in nuclear reactor fluid systems (pumps, valves and heat exchangers) are discussed. In addition, nuclear reactor safety, including regulatory requirements and safety analysis, are discussed.

Course Goals

The major objective of ENME 431 is to have the student understand the fluid systems used in nuclear power plants, including the design bases and safety requirements. A student who successfully completes ENME 431 is able to demonstrate the ability to:

1. Understand the major fluid systems used in nuclear power plants.
2. Understand the design bases and safety requirements for the major fluid systems used in nuclear power plants.
3. Understand the design bases for major components used in nuclear power plant fluid systems including pumps, valves and heat exchangers.
4. Understand the regulatory and safety requirements for the major fluid system used in nuclear power plants.

Course Schedule

During each class meeting the instructor will present information that supports the Course Goals discussed above. Students are expected to ask questions if additional clarification is needed.

Due Dates

Homework: Homework assignments are due at the beginning of class on the specified due dates. To be fair to all students, late homework will not be accepted under any circumstances.

Midterm Exams: Two midterm exams will be given during the semester. The tentative dates for the midterm exams are:
Exam 1: March 2, 2015
Exam 2: April 13, 2015

Final Exam: May 18, 2015. 1:30pm to 3:30pm.

Expectations for Students

Students are expected to attend class on a regular basis. Students are also expected to complete all homework assignments, both midterm exams, possible unannounced quizzes and the final exam.

Grading Procedure

- Homework:** In order for the student to better understand the material presented in class, homework will be assigned. Problem sets (collected at the beginning of the class on the due date) will be worth 10 points each. Most homework assignments will not be graded in detail and all students that make an honest effort to complete a homework assignment will receive 10 points for the assignment. However, on a random basis, some homework assignments will be selected for detailed grading. Solutions to all homework assignments will be posted on the ELMS site. Students can work together; however, copying homework is a violation of the Student Code of Academic Integrity – any occurrences will be referred to and dealt with by the Student Honor Council. In fairness to all students in the class, late homework assignments will not be accepted under any circumstances.
- Midterm Exams:** There will be two one-hour midterm exams. Each hour exam will concentrate on the subject matter covered since the previous exam. However, keep in mind that engineering material builds on itself as a course progresses. Students are expected to have mastery of all previous material. Each midterm exam is worth 100 points.
- Quizzes:** Unannounced quizzes may be given at random times during the semester. If given, each quiz will be worth 10 points.
- Final Exam:** The final exam will be cumulative and cover all course material. The final exam is worth 200 points.

The student's final grade will be determined based on all course work. The final grade is determined only after all course work is completed (i.e. after the final exam).

The final grade will be determined using the following points:

| | <u>Points</u> |
|-----------------|-------------------|
| Homework: | 100 |
| Midterm Exam 1: | 100 |
| Midterm Exam 2: | 100 |
| Quizzes: | 10 per quiz |
| Final Exam: | 200 |
| TOTAL: | 500 + 10 per quiz |

Course Procedures and Policies

Course Attendance Policy

Class attendance will not be recorded on a regular basis; however, students are strongly encouraged to attend all classes since all of the material covered during the exams is presented in the classroom and not included in a course textbook. Also, unannounced quizzes may be given at random times during the semester.

Written Absence Policy

All students are expected to attend class on the scheduled days for the midterm and final exams. Absences will be granted only in extreme situations such as illness or personal emergency. In such situations, the student must provide the instructor with a written document signed by a physician, or other authorized official, explaining why the student was not able to take the exam at the scheduled time. A makeup time for the missed exam will be mutually agreed to by the student and the instructor.

If a student anticipates in advance that he or she cannot attend class for a scheduled exam, it is the student's responsibility to notify the instructor in advance so that a makeup exam can be scheduled. Failure to do so will result in a score of zero for the missed exam.

Academic Integrity Expectations

The University has a nationally recognized Honor Code, administered by the Student Honor Council. The Student Honor Council proposed and the University Senate approved an Honor Pledge. The University of Maryland Honor Pledge reads:

I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination.

Unless you are specifically advised to the contrary, the Pledge statement should be *handwritten* and signed on the front cover of all papers, projects, or other academic assignments submitted for evaluation in this course. Students who fail to write and sign the Pledge will be asked to confer with the instructor.

Arrangements for Students with Disabilities

Academic accommodations for students with disabilities will be provided as directed by a signed statement from the university Disability Support Service.

Copyright Notice

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