

Undergraduate Academic Assessment Plan 2012-13

**Nuclear and Radiological
Sciences**

College of Engineering

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Nuclear and Radiological Sciences, College of Engineering Undergraduate Academic Assessment Plan

Mission Statement

The Department of Materials Science and Engineering seeks to develop tomorrow's leaders in materials and nuclear sciences and engineering through cutting-edge educational programs, to perform high-impact research that benefits society, and to serve the needs of the state and nation.

The Nuclear Engineering Sciences Program (NRS) strives to serve the scientific and engineering community of the state and the nation by providing quality education in the field, conducting basic and applied research to enhance science in the field, and supplying short courses, technology transfer, industrial consulting and distance learning to promote engineering science in the field.

This mission is aligned with both the College of Engineering and university's mission. The college mission is:

The College of Engineering fosters and provides world-class programs in engineering education, research and service to enhance the economic and social well-being of the citizens of Florida, the nation and the world.

The university's mission states in part:

These three interlocking elements — teaching, research and scholarship, and service — span all the university's academic disciplines and represent the university's commitment to lead and serve the state of Florida, the nation and the world by pursuing and disseminating new knowledge while building upon the experiences of the past.

The department's mission promotes these missions through its call for research and education activities to serve the state and nation.

Student Learning Outcomes (SLOs)

Content Knowledge

1. Apply knowledge of mathematics, science and engineering for problem solving in engineering.
2. Analyze and interpret experimental data.

Critical Thinking

3. Develop an engineering design to meet specific technical requirements within realistic constraints such as economic, environmental, health and safety and reliability.
4. Foster the need for life-long learning and the ability to adapt this to engineering practice.

Communication

5. Function effectively on multi-disciplinary skills teams.
6. Communicate effectively, using both oral and written presentations, in engineering practice.

Curriculum Map

Curriculum Map for: **Nuclear and Radiological Sciences (NRS), College of Engineering**

Key: **I** Introduced

R Reinforced

A† Assessed

Courses SLOs							Additional Assessments
Content Knowledge	ENU4001	ENU4605	ENU4641	ENU4630	ENU4612C	ENU4641	
#1	I	R	A†				Senior exit survey.
#2				I	R	A†	Senior exit survey.
Critical Thinking	ENU4630	ENU4612C	ENU4641	ENU4630	ENU4612C	ENU4641	
#3	I	R	A†				Senior exit survey.
#4				I	R	A†	Senior exit survey.
Communication	ENU4630	ENU4612C	ENU4641	ENU4612C	ENU4145	ENU4641	
#5	I	R	A†				Senior exit survey.
#6				I	R	A†	Senior exit survey.

† Examples of curriculum/course assessments used are included in Appendix A

Assessment Cycle

The assessment of SLOs is integrated with the assessment process that occurs under the engineering accreditation requirements under ABET. SLOs are assessed annually in the classes shown above. The cycle includes the following action items:

- Assessment of individual SLOs by the instructors of the courses.
- Review of assessment results by the Nuclear Engineering Executive Committee, which makes recommendations for improvement actions.
- Review by the department faculty and decision on recommendations from the NE Executive Committee.

Assessment Cycle Chart

Assessment Cycle for: Nuclear and Radiological Sciences (NRS), College of Engineering

Analysis and Interpretation:

Completed by September 1

Improvement Actions:

Completed by September 15

Dissemination:

Completed by October 1

SLOs	Year	10-11	11-12	12-13	13-14	14-15	15-16
Content Knowledge							
#1		X	X	X	X	(*)	(*)
#2		X	X	X	X	(*)	(*)
Critical Thinking							
#3		X	X	X	X	(*)	(*)
#4		X	X	X	X	(*)	(*)
Communication							
#5		X	X	X	X	(*)	(*)
#6		X	X	X	X	(*)	(*)

(*) The Nuclear and Radiological Sciences Degree is for students interested in the Graduate Program in Medical Physics or for students interested in going to Medical School. In Fall of 2011, the Nuclear Engineering Program, which had been part of the Nuclear and Radiological Engineering (NRE) Department, was placed in Materials Science and Engineering (MSE). Similarly, the Medical Physics Program, which had been part of NRE, was placed in Biomedical Engineering (BME). The current plan is to transition the Nuclear and Radiological Sciences Degree/Program from MSE to BME within the next year or two. When this occurs, there will be changes in the Nuclear and Radiological Sciences curriculum and, consequently, in the ALC for this degree.

Methods and Procedures

Direct Assessment

Instructors are required to systemically assess SLOs in a given course. Specific problems, specific assignments, or specific projects that demonstrate proficiency for a given outcome are selected by the faculty member and the scores on the selected specific assignments are combined using a weighting algorithm constructed by the faculty member to obtain a final score for each supported outcome for each student.

Outcomes with average scores across all courses of 80% and higher are considered to have been successfully achieved with no cause for concern. An outcome with an average score under 70% is considered to not have been achieved. Such a situation requires immediate, corrective action. An outcome with an average score of between 70% and 80% is considered to have been achieved, but is an item of concern. In this case the program is reviewed to identify methods that will lead to improved performance for this outcome. This situation will then be carefully tracked until the score can be improved to at least 80%. In addition to this formal, three-tier system, outcome scores are tracked to ensure consistency or improvement in curriculum year-to-year.

The compliance metric for attainment of expectations for a given outcome is that at least 80 % of the students must achieve a score of at least 60 % for that outcome. *Both the outcome average scores and the compliance metric are tracked as part of the SLO Assessment Process.*

Indirect Assessment

Indirect assessment methods include Items 5, 6 and 8 in the table below. A URL for the NE student exit interview form and a copy of the course/instructor student evaluation form are included in Appendix B.

Figure 1: Methods and Procedures Measurement Tools for the Assessment Process

1.	Student performance in specific course assignments (course outcome metric data)	S
2.	Summary Assessment Evaluations of Course Outcome Metric Data	S
3.	Course self-evaluations from faculty	S
4.	Course self-evaluations Summary Assessment Reports	S
5.	Exit interviews with graduating seniors	S
6.	Course/instructor evaluations by students	S
7.	Student-faculty forum meetings	S
8.	Personnel files (records of student academic progress, awards, scholarships, internship reports, etc.)	C
9.	External Advisory Board Reviews and Reports	A
10	SACS Reports	A

S. Information gathered and processed each semester

A. Information gathered and processed annually

C. Processing and review on a continuous basis, but at least once a semester for each student

Assessment process data/results are available in the Department.

Assessment Oversight

Name	Department Affiliation	Email Address	Phone Number
Scott S. Perry	MSE Associate Chair for Academics	ssp@mse.ufl.edu	6-3333
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Appendix A: Examples of Curriculum/Course Assessments Used

ENU 4605

Homework Sets #1 through #8

Midterm Exam

Final Exam

ENU 4612C

Homework Set #1

Homework Set #2

Homework Set #7

Student Course Evaluation Form, Q#9

Student Course Evaluation Form, Q#15

Student Course Evaluation Form, Q #16

ENU4641

Homework Set #1, #2, #3, #4 and #5

Midterm Exam

Final Exam

Final Project

ENU4630

Homework Set #1, #2, #3, #4, #5 and #6

Midterm Exam

Final Exam

Final Project

Oral Reports

ENU 4001

Homework Set #1

Homework Set #2

Homework Set #7

Student Course Evaluation Form, Q#9

Student Course Evaluation Form, Q#15

Student Course Evaluation Form, Q #16

Appendix B: Student Exit Interview and Instructor Evaluation Forms

The NE Student Exit Interview Form can be found at:

<http://www.nuceng.ufl.edu/students/current/undergraduate/exit-interview>

The Faculty (Course) Evaluation Form is presented below.

Faculty Evaluation Form

Instructor:

Term:

Course:

Your evaluation will be used by your instructor in refining and improving the course, and will be used by the University of Florida in making promotion, tenure, and salary decisions. Student evaluations are also used by the University in reporting performance levels to the Florida legislature. Part I, Questions 1-7 and 10 will be made available to the public.

Part I: Instructor		Poor	Below Average	Average	Above Average	Excellent
1.	Description of course objectives and assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	Communication of ideas and information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	Expression of expectations for performance in this class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	Availability to assist students in or out of class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	Respect and concern for students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	Stimulation of interest in course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	Facilitation of learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	Enthusiasm for the subject	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	Encouragement of independent, creative, and critical thinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	Overall rating of the instructor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Part II: Additional Questions		Low	Below Average	Average	Above Average	High
11.	Amount learned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.	Amount of effort required	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13.	Difficulty of the subject matter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.	The educational value (relevance) of this course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.	Expected grade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Free-text Questions

Instructors can improve their classes through thoughtful student reactions. Please comment on any of the following about which you have an opinion - and be frank. Instructors do not have access to course evaluations until after final grades have been submitted.

1. What personal qualities or teaching skills of the instructor contributed to the success of the course?
2. Did any qualities or teaching practices of the instructor hinder the success of the course?
3. What is your opinion of this course, including printed materials?
4. Please indicate any particular comments you believe would be helpful to the instructor in improving the overall quality of the course [e.g., organization of the course (lectures, discussion and other class activities), course syllabus, examinations, or other matters that in your opinion might have helped increase the amount you could have learned from the course experience].
5. Add any other comments.

Instructor:

Term:

Course: