

**Masters of Science
in Nuclear Engineering
Academic Assessment Plan
2012-2013**

Materials Science and
Engineering

Nuclear Engineering
Program

College of Engineering

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Nuclear Engineering

College of Engineering

Academic Assessment Plan – MS Degree

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 Program (NEP) 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 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. Identify unknown aspects of nuclear and/or radiological systems and formulate an approach to elucidating those aspects using engineering and/or scientific principles at a level appropriate to a Masters of Science degree in nuclear engineering .

Skills

2. Obtain information from primary literature and technical reports, and integrate that information to reach conclusions regarding the current state of the art and areas in which further research is needed.
3. Write and/or orally present the results of a research project or literature review in a manner that clearly communicates one or more of the following: current state of the art, areas in which additional research is needed, research objectives, procedures, results, and conclusions.

Professional Behavior

4. Follow requirements for writing reports and research papers, and does so based on ethical standards regarding appropriate citation and plagiarism.

Research

The Nuclear Engineering Program offers two tracks towards the Masters of Science (MS) degree. The MS Non-Thesis track entails only coursework and does not involve independent research. The MS Thesis track entails independent research conducted under the direction of a graduate research advisor.

The MS degree in Nuclear Engineering totals 30 credit hours, typically in the form of 10 three hour courses. Graduate courses in the NE graduate program include reactor physics, reactor design, radiation interactions, radiation effects on materials, thermal hydraulics, risk assessment, radiation detection and measurement, and safeguards and non-proliferation. The degree plan requires the completion of five courses in specified topic areas and five elective topics.

Students seeking the MS Thesis degree are prepared for research activities through exposure to research topics and approaches in required graduate courses and through formal laboratory instruction by research advisors and senior researchers.

Assessment Timeline

Assessment Cycle for: Masters of Science in Nuclear Engineering, College of Engineering

Assessment	Assessment 1	Assessment 2
SLOs		
Content Knowledge		
Nuclear Engineering Fundamentals	Final Exams in ENU 5615C, ENU 6051, and ENU 6106	Thesis Defense
Skills		
Literature research/assessment of field	Final Writing Assignment in ENU 5615C	Thesis Defense
Technical presentation	Presentation Assignment in ENU 5615C	Thesis Defense
Professional Behavior		
Technical writing/ethical reporting	Final Writing Assignment in ENU 5615C	Masters Thesis or Non-Thesis Paper Peer Reviewed Publication

Assessment Cycle

Assessment Cycle for: Masters of Science in Nuclear Engineering, College of Engineering

Analysis and Interpretation:	May- June, ongoing at time of defense
Improvement Actions:	Completed by August 31
Dissemination:	Completed by September 30

SLOs	Year	10-11*	11-12*	12-13	13-14	14-15	15-16
Content Knowledge							
Nuclear Engineering Fundamentals				X	X	X	X
Skills							
Literature research/assessment of field				X	X	X	X
Technical presentation				X	X	X	X
Professional Behavior							
Technical writing/ethical reporting				X	X	X	X

*Note: Data collection for these assessments will begin in the 2012-13 academic year. We did not collect data in prior years.

Measurement Tools

The techniques used to assess the knowledge objectives are measured through advanced-level courses by faculty members who teach the courses. Likewise, the skills objectives are evaluated by NE faculty instructors of the core and elective courses through individual assignments related to literature research and assessment of the current status of the NEP discipline. Technical presentation skills are delivered and evaluated through the Critical Analysis of Research course. For all students, the technical writing objective is evaluated through the assignments associated with the Critical Analysis of Research course and a required Non-Thesis paper or Masters Thesis (document), depending on their specific track. For students on the thesis track, the knowledge and skills learning objectives are also measured through an evaluation of the skills and capabilities demonstrated in the Thesis Defense. This evaluation is performed by a committee composed of three expert faculty familiar with the area of research. The rubric of this evaluation is included below.

Name: _____

UFID: _____

**Masters of Science in Nuclear Engineering
Graduate Student Learning Outcomes Checklist**

Indicate if the student has successfully accomplished the following outcomes:

1. Student is able to identify unknown aspects of nuclear and/or radiological systems and formulate an approach to elucidating those aspects using engineering and/or scientific principles at a level appropriate to a doctoral research.

☐ Yes
☐ No

2. Student demonstrates proficiency on appropriate experimental and/or computational techniques used in nuclear engineering research, and uses these techniques to investigate various relationships (atomic, nuclear, mechanical, materials performance, etc) in nuclear systems at a level appropriate to doctoral research.

☐ Yes
☐ No

3. Student demonstrates an ability to work cooperatively with others, interact with supervisors, follow guidelines for appropriate management of data, and follow safety requirements for working in a research laboratory

☐ Yes
☐ No

4. Student is able to follow requirements for writing reports and research papers, and does so based on ethical standards regarding appropriate citation and plagiarism.

☐ Yes
☐ No

Date: _____

Supervisory Chair: _____
Name (printed)

Signature

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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