

2012-2013 Advanced Systems Engineering Certificate Assessment Plan

Advanced Systems
Engineering Certificate

Industrial and Systems
Engineering

College of Engineering

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Table of Contents

A. Rationale.....	2
B. Mission.....	2
C. Student Learning Outcomes (SLOs)	3
D. Assessment Timeline for Certificates.....	4
E. Assessment Cycle Chart for Certificates	4
F. Methods and Procedures	5
G. Assessment Oversight.....	5

Advanced Systems Engineering Certificate

College of Engineering

2012-13 Certificate Assessment Plan

A. Rationale

The Advanced Systems Engineering Certificate is designed for engineers in industry or the military interested in expanding their knowledge of systems engineering through education in systems analysis, design, implementation, and optimization for all engineering fields. The certificate is based on the following coherent set of courses: ESI 6555 Systems Management, ESI 6553 Systems Design, and ESI 6552 Systems Architecture. In addition, students are required to complete two courses from the following list: ESI 6314 Deterministic Methods in Operations Research, ESI 6321 Applied Probability Methods in Engineering, EIN 6357 Advanced Engineering Economy, ESI 5236 Reliability Engineering, and ESI 6429 Digital Simulation Techniques.

B. Mission

University

The University of Florida is a public land-grant, sea-grant and space-grant research university, one of the most comprehensive in the United States. The university encompasses virtually all academic and professional disciplines. It is the largest and oldest of Florida's eleven universities, a member of the Association of American Universities and has high national rankings by academic assessment institutions. Its faculty and staff are dedicated to the common pursuit of the university's threefold mission: teaching, research and service.

The University of Florida belongs to a tradition of great universities. Together with its undergraduate and graduate students, UF faculty participate in an educational process that links the history of Western Europe with the traditions and cultures of all societies, explores the physical and biological universes and nurtures generations of young people from diverse backgrounds to address the needs of the world's societies.

The university welcomes the full exploration of its intellectual boundaries and supports its faculty and students in the creation of new knowledge and the pursuit of new ideas.

- *Teaching* is a fundamental purpose of this university at both the undergraduate and graduate levels.
- *Research and scholarship* are integral to the educational process and to the expansion of our understanding of the natural world, the intellect and the senses.
- *Service* reflects the university's obligation to share the benefits of its research and knowledge for the public good. The university serves the nation's and the state's critical needs by contributing to a well-qualified and broadly diverse citizenry, leadership and workforce.

The University of Florida must create the broadly diverse environment necessary to foster multi-cultural skills and perspectives in its teaching and research for its students to contribute and succeed in the world of the 21st century.

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 university aspires to advance by strengthening the human condition and improving the quality of life.

College

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.

Department

The Department's mission is to develop critical thinkers and provide Industrial Engineering and Operations Research solutions for complex analytical problems in business, government and society in general.

C. Student Learning Outcomes (SLOs)

Proficiency in the core methodological and application areas of operations research and systems engineering, including mathematical modeling and analysis of problems as well as the design and management of systems.

D. Assessment Timeline for Certificates

Program: Advanced Systems Engineering Certificate

College of Engineering

Courses SLOs	ESI 6553 Systems Design	ESI 6314 Deterministic Methods of Operations Research	ESI 6321 Applied Probability Methods in Engineering	EIN 6357 Advanced Engineering Economy	ESI 6429 Digital Simulation Techniques
Proficiency in the core methodological and application areas of systems engineering	x				
Proficiency in the core methodological and application areas of operations research		x	x	x	x

E. Assessment Cycle Chart for Certificates

Program: Advanced Systems Engineering Certificate

College of Engineering

Analysis and Interpretation: June-August
 Improvement Actions: Completed by November
 Dissemination: Completed by December

Year	12-13	13-14	14-15	15-16
SLOs				
Proficiency in the core methodological and application areas of systems engineering	x	x	x	x
Proficiency in the core methodological and application areas of operations research	x	x	x	x

F. Methods and Procedures

The assessment method is based on outcome scorecards (<http://www.ise.ufl.edu/about/sacs-accreditation/>) from instructors of the following courses: ESI 6553 Systems Design, ESI 6314 Deterministic Methods in Operations Research, ESI 6321 Applied Probability Methods in Engineering, EIN 6357 Advanced Engineering Economy, and ESI 6429 Digital Simulation Techniques.

G. Assessment Oversight

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