

2017 - 2019 Educational Skill Requirements
Systems Analysis (SA)
Subspecialty 3210
Curriculum 363

1. Curriculum Number: 363
2. Curriculum taught at Naval Postgraduate School.
3. Curriculum Length in Months: 24 months
4. Academic Profile Code Required: 335
5. The officer must understand the fundamental concepts and be familiar with the basic functional areas of Systems Analysis within the Department of Navy (DoN) and the Department of Defense (DoD) including:
 - a. SYSTEMS ANALYSIS (Overall ESR): The graduate of this curriculum will understand and be able to apply the basic principles of systems analysis as a basis for aiding key decisions on force requirements, weapon systems, existing and proposed DoN/DoD policies, and other defense matters. The following numbered ESRs support this high-level objective.
 - b. BASICS (ESR #1): The graduate will possess the mathematical skills required to support graduate study in systems analysis.
 - c. UNCERTAINTY FUNDAMENTALS (ESR #2): The graduate will be well versed in uncertainty fundamentals for systems analysis, including applications of probability, statistics, data analysis, and modeling uncertainty.
 - d. SIMULATION (ESR #3): The graduate will be able to construct and utilize Monte Carlo simulations of combat and other processes that evolve in time, and will be able to deal with statistical issues associated with the need for replication.
 - e. TACTICAL ANALYSIS (ESR #4): The graduate will be able to apply operations analysis methods to tactical and operational problems including tactical decision analysis, search and detection, and weapons effectiveness.

f. COST ANALYSIS (ESR #5): The graduate will understand the methods and practice of cost analysis including various cost models, with particular emphasis on the relationship of effectiveness models and measures to cost, and applications in cost-benefit analysis.

g. RISK BENEFIT ANALYSIS (ESR #6): The graduate will be able to apply the principles of probabilistic risk assessment in the context of systems analysis decision problems. This includes a framework for balancing risks and benefits, and analysis under conditions of large financial and technological uncertainties.

h. OPTIMIZATION (ESR #7): The graduate will be able to formulate and solve a wide variety of optimization problems with particular emphasis on applications in optimum allocation of scarce resources and multi-year capital budgeting.

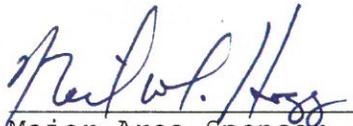
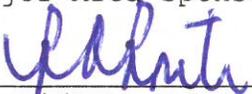
i. PRACTICE (ESR #8): The graduate will have gained experience in all aspects of analytical studies including review, critique, and oversight of the work of others; as well as participation in the conduct of an analytical study. Review, critique and oversight include the ability to highlight critical assumptions, recognize strengths and weaknesses of applied analytical methodologies, and evaluate study recommendations. Practice in the design and conduct of an analytical study includes the skills to formulate problems, use the analytical process to define study requirements, and apply appropriate analytical methodologies. Practice also includes demonstrating proficiency in presenting results both orally and in writing.

j. SYSTEM ANALYSIS CONTEXT (ESR #9): The graduate will have completed an approved option sequence in Defense Resource Management, or another approved option sequence in a particular defense systems area in which systems analysis may be applied.

6. Major Area Sponsor and Subject Matter Expert

a. Major Area Sponsor: W. K. Lescher, VADM, Deputy Chief of Naval Operations, Integration of Capabilities & Resources (OPNAV N8).

b. Subject Matter Expert: R. B. Crites, RADM,
Director, Assessment Division (OPNAV N81).

APPROVED:	 Major Area Sponsor	<u>19 April 2018</u> [DATE]
APPROVED:	 President, NPS	<u>APR 27 2018</u> [DATE]
APPROVED:	 Director, OPNAV N12	<u>6 Jun 2018</u> [DATE]