

2022-2024 EDUCATION SKILL REQUIREMENTS

System Engineering Analysis

Subspecialty: 650X

Curriculum: 308

1. Curriculum Number: 308
2. Curriculum Length in months: 24
3. GRE/GMAT Required: No
4. APC Required: 334
5. The officer must understand the fundamental concepts and be familiar with the basic functional areas of Systems Engineering Analysis within the Department of the Navy (DON) and the Department of Defense (DOD) including:
 - a. ESR-1: **BASICS** – Introduction of the mathematics, physics, and computer skills needed to understand the technical aspects of combat, information, and decision systems.
 - b. ESR-2: **SYSTEMS ENGINEERING** – Understand the systems engineering process and how to perform systems engineering studies, to include a knowledge of system design, development, and deployment; technical and cost trade-offs; human-in-the-loop issues and project management. Be able to integrate relevant technological disciplines that bear on weapons, sensor, and information systems. Understand responsiveness to realistic military requirements, specifications, and cost limitations. Study the linkage between strategic planning requirements, project organization, and technology.
 - c. ESR-3: **OPERATIONS ANALYSIS** – Learn to apply advanced management and operations research ideas to defense problems, including cost-benefit and cost-effectiveness analysis. Understand uncertainty and risk and their impact on military planning, decision making, and operations. Become familiar with complexity and the modeling of competitive systems. Gain a basic knowledge of modeling, simulation, and gaming. Learn how Operations Research techniques, including experimental design, are applied to operational test and evaluation; planning and analyzing fleet battle experiments; and to military decision making.
 - d. ESR-4: **SENSOR AND WEAPONS SYSTEMS** – Gain a solid understanding of the scientific, mathematical, and engineering principles behind existing and future military systems. Understand the elements that impact sensor system performance. Understand the principles behind existing and emerging sensor technologies, including radar, sonar, electro-optical sensors, and other sensors. Understand the technologies underlying weapons systems, and the principles that guide successful integration of weapons and sensors with platforms.
 - e. ESR-5: **INFORMATION SYSTEMS TECHNOLOGY** – Develop knowledge of information systems technology including computer systems; computer networks and communications systems; software engineering; and data base management. Demonstrate awareness of the capabilities, limitations,





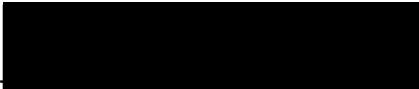
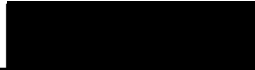
Enclosure (3)

design and operation, and vulnerabilities of information systems to include cyber interface integration. Understand the concepts of defensive and offensive Information Warfare.

f. ESR-6: INDEPENDENT STUDY – Each student must demonstrate the ability to conduct independent and team oriented research and analysis on problems that link technical solutions to tactical problems, and to present the results in writing and oral briefings. A substantive project report or thesis will be required of all students.

g. ESR-7: DEPARTMENT OF DEFENSE RESOURCE ALLOCATION – Develop a working knowledge of resource allocation within the Department of Defense including the PPBE, JCIDS, and Acquisition processes. It is imperative that students understand the key issues regarding the scheduling of budget delivery to, and the related interface with Congress, as well as the critical milestones involved in development of the President's Budget. In addition, a working knowledge of the interfaces between PPBE, JCIDS, and Acquisition is necessary to gain an appreciation for the synergies and disconnects between these three processes – and in particular to understanding the manner in which they impact warfighting acquisition programs.

h. ESR-8: JOINT PROFESSIONAL MILITARY EDUCATION: Completion of Joint Professional Military Education (JPME) is required for all USN officers enrolled in the 308 curriculum. Graduates will develop understanding of warfighting within the context of operational art, to include: national military capabilities and command structure, joint and service doctrine, joint planning and execution, and joint and multinational forces and systems integration at the operational level of war.

APPROVED:		
	Major Area Sponsor Representative	[DATE]
APPROVED:		
	President, NPS	[DATE]
APPROVED:		
	Director, OPNAV N710	[DATE]