

FY 2015 EDUCATIONAL SKILL REQUIREMENTS  
Systems Engineering Analysis  
Subspecialty 6500  
Curriculum 308

EDUCATIONAL SKILL REQUIREMENTS FOR: 6500 - Systems Engineering Analysis

1. Curriculum Number: 308.
2. Curriculum taught at NPS.
3. Students are Fully Funded.
4. Curriculum Length in months: 24 months with two starts per year in January and July.
5. APC Required: 334.
6. Community Managers have agreed to allow billets to be coded for Systems Engineering Analysis/6500 and Officers to be educated for this curriculum.

Designator	OCM	POC	Date
111X	BUPERS-311	CDR Erik Eslich erik.j.eslich@navy.mil	28 Jan 15
112X	BUPERS-312	CDR Alan Nelson alan.a.nelson@navy.mil	23 Jan 15
113X	BUPERS-311D	CDR Bryan Johnson bryan.l.johnson@navy.mil	8 Dec 14
114X	BUPERS-311E	CDR Michael Tollison michael.tollison@navy.mil	23 Jan 15
13XX	BUPERS-313	CDR Patrick Hansen patrick.hansen@navy.mil	10 Dec 14

7. 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:

ESR-1 **BASICS:** Introduction to the mathematics, physics, and computer skills needed to understand the technical aspects of combat, information, and decision systems.

**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.

**ESR-3 OPERATIONS ANALYSIS:** Learn how to apply advanced management and operations research ideas to defense problems, to include 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.

**ESR-4 SENSOR AND WEAPON 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.

**ESR-5 INFORMATION SYSTEMS TECHNOLOGY:** Develop knowledge of information systems technology, including computer systems, networks and communications systems, software engineering, and data base management. Demonstrate awareness of the capabilities, limitations, design and operation, and vulnerabilities on platforms with cyber interface integration including the Live-Virtual-Constructive environment. Understand the concepts of defensive and offensive Information Warfare.

**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 written and oral briefings. A substantive project report or thesis will be required of all students.

**ESR-7 DEPARTMENT OF DEFENSE RESOURCE ALLOCATION:** Develop a working knowledge of resource allocation within the DOD, including the Program Planning Budgeting System (PPBS), Joint Capabilities Integration and Development System (JCIDS), and Acquisition processes. It is imperative that students understand 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 PPBS, JCIDS and Acquisition is necessary to gain an appreciation of the synergies and disconnects between these three processes - and in particular to understanding the manner in which they impact warfighting acquisition programs.

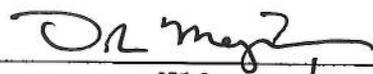
**ESR-8 JOINT PROFESSIONAL MILITARY EDUCATION:** Completion of Joint Professional Military Education (JPME) is required for all USN officers enrolled in the 308 curriculum. Graduates will develop an understanding of warfighting within the context of operational art, to include: national military capabilities 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

6 MAR 15  
DATE

APPROVED:   
PRESIDENT, NPS

13 March 2015  
DATE

APPROVED:   
N12

8 JUN 2015  
DATE