

Course: EW300 Principles of Naval Weapon Systems

Credits: 3 credit – 3 recitation hours – 0 laboratory hours

Course Description: An introduction to the theory of weapons systems through a study of the principles of sensors, tracking, delivery, and destruction mechanisms.

Pre-requisites: Calculus II, Chemistry II, & Physics II

Course Coordinator: CDR(sel) Donald Peltier

Textbook: *Principles of Naval Weapon Systems*, by Craig Payne, 2nd edition, Naval Institute Press, 2010

Course Objectives: This course is designed to provide students with an enhanced understanding of basic principles of naval weapon systems. Each student will be required to understand how the concepts of air, surface, and subsurface sensors, weapon delivery means, and destructive mechanisms combine to form a complete weapon system. At completion of the course, the student will be able to:

- Adapt the basic theory of sensors to the process of detecting a selected target.
- Outline the delivery means of a weapon to the intended target.
- Design a warhead to deliver the necessary damage mechanism of fragmentation, blast, and nuclear warheads for a specified target.
- Analyze a target scenario in the construct of the Detect to Engage sequence.

Topics:

- Energy propagation and antenna systems
- RADAR systems and performance factors
- Electro-Optic systems and performance factors
- SONAR systems and performance factors
- Weapon architecture, ballistics, fire control, guidance, and fuzing
- Fragmentation, chemical blast, nuclear, and special warhead weapons
- Weapon to target pairing and damage prediction

Last Updated: 11-December-2020