

Weapons and Systems Engineering

1. ES403 Engineering Design Methods

2. Classroom schedule:

Course meets for one 50 minute lecture and two 50 minute consecutive lab periods.

3. Coordinator: CAPT Owen G. Thorp III, USN, Ph.D.

4. Textbook: Clive L. Dym and Patric Little, Engineering Design, 3rd Edition, John Wiley, 2009

5.a. Catalogue Data: ES403 Engineering Design Methods (1-2-2). An introduction to the engineering design process and project management. Also, includes the composition of the proposal for the senior design project. Topics include: Overview of Design Process, Conceptual Design, Ethics and Safety, Performance Specifications, Subsystem Design, Cost Estimation and Budgeting, Project Management, Engineering Graphics, Detailed Design.

b. Prerequisite: ES308

c. This is a required course

6.a. The student will use the design process taught in this course as well as the fundamental knowledge gained in preceding systems engineering courses to complete a design of a capstone project. This will ultimately result in a capstone design presentation and capstone design written proposal.

b. Relationship of course to program outcomes:

- Outcome C (Design a System, Component or Process): Discussed throughout the semester and demonstrated during the design presentation and final design report.
- Outcome F,H, and J (Contemporary Issues, Professional and Ethical Responsibilities): Discussed during week 4 of semester and included as part of final design report.
- Outcome I ((Engage in Life Long Learning): Discussed throughout the semester and demonstrated during an out of class assignment, design presentation and final design report.

7. Topics covered:

Topics	Lecture periods	Laboratory sessions
1. Overview of Design Process/Problem Statement	2	2
2. Conceptual Design	1	1
3. Ethics and Safety	1	0
4. Preliminary Project Presentation	1	2
5. Preliminary Design	3	3
6. Project Management	2	2
7. Shop Practices	1	1
8. Engineering Graphics	2	2
9. Design Presentations	1	2