

**United States Naval Academy
Mechanical Engineering Department**

Catalog Description: EX486B Design and Analysis of Modern Weapons
Designation: Elective

Credit: 3 (3-0-0)

An elective class that covers how modern weapons are designed and how analysis supports design activities. Covers explosives, warheads, fuzes, propellants, penetration mechanics, lethality and effectiveness.

Prerequisites:

Corequisites: None

Textbooks: None, notes provided in class.

Course Director: Prof. K. Conley

Course Content:

No.	Topic or Subtopic	hrs.
1	Explosives	5
2	Propellants	3
3	Warheads	6
4	Fuzes	3
5	Guns	3
6	Penetration Mechanics	6
7	Lethality, Vulnerability, Survivability	8
8	Target Planning	8
9	War Gaming	6

Assessment Methods:

		YES	NO
A	Quizzes	X	
B	Homework		X
C	Exams		X
D	Laboratory Reports		X
E	Oral Presentations	X	
F	Design Reports/Notebooks	X	
G	Prototypes/Demonstrations	X	
H	Projects	X	
I	Other	X	

Course Outcomes : ¹

1. To understand how explosives function, how they are made, and how they are used.
2. To understand and demonstrate the principles of warhead design.
3. To describe how weapon system effectiveness is determined.
4. To understand the concepts and issues related to the employment of weapons including weaponizing, collateral damage and battle damage assessment.
5. To understand how weapons testing is conducted and its purpose.

Program Outcomes	Course Outcomes				
	(1)	(2)	(3)	(4)	(5)
(a)	X	X	X	X	X
(b)					
(c)					
(d)					
(e)		X		X	
(f)		X			
(g)	X	X			X
(h)	X				
(i)		X		X	
(j)					
(k)					

Date of Latest Revision: 11 Jan 2018, Prof. K. Conley