

Course: EW481X / EW482X Autonomy and Control in Naval Weapon Systems

Credits: 1 credit – 0 recitation hours – 2 laboratory hours

Course Description: An introduction to the fundamental technologies behind autonomous systems. This course explores topics including control systems, machine learning, computer vision, and the ethics of autonomous systems so that students will understand the capabilities and limitations of both modern and future naval weapons.

Pre-requisites: Calculus II, Chemistry II, & Physics II. Coreq: EW300

Course Coordinator: LCDR Allan Elsberry

Textbook: None

Course Objectives:

- Describe historical trends in the introduction of autonomy in naval warfare
- Understand fundamental negative feedback control techniques that facilitate autonomy.
- Differentiate between levels of autonomy in naval weapon systems.
- Understand the benefits and limitations of artificial intelligence to the conduct of naval warfare.
- Analyze military capabilities to determine challenges associated with fully autonomous systems.

Topics:

- Autonomous Systems
- Open loop control systems
- Closed loop control systems
- Sensors
- Computer Vision
- Machine Learning
- Networks & Swarms
- Ethics of Autonomous Systems

Last Updated: 01-December-2020