THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Introduction to Radar Systems

ECE 5013

Credit Hours:
3.00

Course Levels:
Undergraduate (1000-5000 level)
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
Introduces the fundamentals of radar such as the main concepts and techniques used in modern radar systems. The class is a survey course exposing students to a wide range of radar applications and design issues.

Prerequisites and Co-requisites:
Prereq: 3050, and 3010 or 3010.01, and Stat 3470; or Grad standing in Engr.

Course Goals / Objectives:
- Master the use of the radar range equation in a variety of its many forms.
- Master the basic concepts of pulse-Doppler radar systems and the fundamental equations.
- Be competent with key concepts underpinning modern radar design.
- Be familiar with the operation and trade-offs of modern radar systems.
- Be competent in relating SAR system parameters to SAR system performance (e.g. range and cross-range resolution)
- Be familiar with SAR imaging algorithms

Course Topics:

- History and background of Radar
- The radar equation, detection and clutter
- MTI and pulse Doppler radar
- Pulse compression and waveform design
- CW and FM radar
- Tracking radar
- Radar antennas and arrays
- SAR

Designation:

Elective