

Master Syllabus

EGR 1211 - Introduction to Large Area Surveillance

Division: Science, Mathematics and Engineering

Department: Automation and Control Technology

Credit Hour Total: 3.0

Lecture Hrs: 2.0 **Lab Hrs:** 2.0

Prerequisite(s): EGR 1202

Other Prerequisite(s): AND Approval of Department , AND Other Secret Clearance

Date Revised: February 2014

Course Description:

This course is designed to familiarize the student with the concepts of electro-optical remote sensing of important objects that can appear anywhere in the world without warning for a limited period of time. Some of these objects can also be rapidly moving. Such objects include missiles and aircraft in powered flight, nuclear and conventional explosions, fires and other military activity. Discussion includes the unique object signature and sensor characteristics that make detection of these objects possible while continuously monitoring large areas. Two classroom, two lab hours per week.

General Education Outcomes:

- ▣ Oral Communication
- ▣ Written Communication
- ▣ Critical Thinking/Problem Solving
- ▣ Information Literacy
- ▣ Computer Literacy

Course Outcomes:

Optical sensors and detectors

Describe the purpose of various types of sensors and detection methods.

Assessment Method: Locally developed exams

Performance Criteria: 70% or higher correct responses

IR as an intelligence tool

Describe overhead and non-imaging infrared as a tool for ONIR.

Assessment Method: Performance appraisals

Performance Criteria: Score 15 or above on a five by five rubric

Characteristics of ONIR sources

Identify examples of several ONIR target sources and their characteristics.

Assessment Method: Performance appraisals

Performance Criteria: Score 15 or higher on a five by five rubric

Outline:

Infrared as an intelligence tool
Motivation for Overhead Non-imaging Infrared (ONIR)
The ONIR collection method
Characteristics of ONIR sources
Target spectral characteristics
Sensor optics
Various sources
Collecting IR energy-sensors, optical-sensors, detectors
Field of Regard and Footprint
Exploitation of isolated target