EE-3190
Optical Sensing and Imaging

Curricular Designation:  CpE: elective, EE: elective

Catalog Description:  Optical sensing techniques, including imaging and non-imaging systems. Credits: 3.0 Lec-Rec-Lab: (3-0-0) Semesters Offered: Fall Restrictions: Must be enrolled in one of the following Major(s): Computer Engineering, Electrical Engineering, Physics Pre-requisites: EE 2190 or EE 4800.

Textbooks(s) and/or Other Required Materials:

Prerequisites by Topic:
Familiarity with the basics of electromagnetics and geometrical optics.
Familiarity with basics of light detection and conversion to electrical signals.

Course Objectives:
1. Understand two dimensional signals fundamental to analyzing optical systems.
2. Understand and be able to use diffraction theory to model propagation and imaging problems.
3. Understand and be able to model various sensing and imaging systems.
4. Understand basic remote sensor designs, tradeoffs, and sensing modes.
5. Understand basics of data calibration and processing.
Topics Covered:

1. Nature of remote sensing.
2. Optical radiation models.
4. Data models.
5. Spectral transforms.
7. Correction and calibration.

Relationship of Course to Program Outcomes:

- CpE: Outcome: a via topic(s): 2-7
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- EE: Outcome: a via topic(s): 2-7
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  Outcome: h via topic(s): 1

Contribution of Course to Meeting the Professional Component:

- EE: Engineering Topics
- CpE: Engineering Topics

Class/Laboratory Schedule (note: 1 hour = 50 minutes):

- Lecture: 45 hours = 3 hours/week for 15 weeks

Prepared by:

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