THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Remote Sensing of Environment

CIVILEN 5420

Credit Hours:
3.00 - 3.00

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

Course Components:
Lecture
Lab

Course Description:
The energies of the natural and cultural environment, current remote sensing systems and case histories of applications in measuring the environment.

Prerequisites and Co-requisites:
Prereq: 2410 (400), or permission of instructor.

Course Goals / Objectives:
- Develop an understanding of image processing techniques for remote sensing data
- Develop an understanding of the electromagnetic spectrum, as used in remote sensing techniques and applications
- Develop a knowledge of the fundamental concepts of remote sensing for image data interpretation and analysis

Course Topics:
- Introduction to remote sensing: definition, history, principles, professional involvement
- Electromagnetic radiation: electromagnetic spectrum, radiation principles, energy interactions, data acquisition and interpretation
- Aerial photography: aerial cameras; panchromatic, black-and-white infrared, color, and color infrared films; scale and resolution; flight planning; basic photogrammetry principles
- Satellite orbits; framing vs. scanning systems
- Land observation satellite systems; sensor description; data products; applications
- Commercial satellite systems
- Remote sensing of thermal energy: radiation principles, geometry of thermal images; interpreting thermal images
- Active and passive microwave remote sensing: radar fundamentals, side-looking Airborne Radar (SLAR); interpreting SLAR imagery, satellite imaging radars; passive microwave sensing
- Lidar remote sensing
- Remote sensing applications: land cover/land use change, vegetation, water, urban landscape
- Future of remote sensing; ethics in remote sensing

Designation:
Elective