GRADUATE EMBEDDED CERTIFICATE IN REMOTE SENSING

Remote sensing refers to a means of investigating the properties of a target using measurements made at some distance from the target. Applications range from astronomy and environmental applications to medical radiography and automotive collision avoidance radars, as well as security-enhancing sensors. In the last three decades, sensing of the Earth and its atmosphere has increased very substantially because of climate change and global pollution concerns and because of the need for measurements to support the increasingly sophisticated weather and earthquake forecasting and oil and gas surveying capabilities.

Students completing the master's or doctoral degree requirements of the Schools listed below may be awarded a Remote Sensing Certificate. The primary administration of the certificate is through Dr. Irina Sokolik of the School of Earth and Atmospheric Sciences. Departmental contacts are listed below:

Aerospace Engineering: Dr. Robert Braun
Electrical and Computer Engineering: Dr. Manos Tentzeris
Earth and Atmospheric Sciences: Dr. Irina Sokolik
Civil and Environmental Engineering: Dr. Michael Bergin
Chemistry and Biochemistry: Dr. Thomas Orlando
City Planning: Dr. Steven French

The courses that would be used to satisfy the requirements of this certificate have been divided into two areas:

1. First, a group of core courses that cover both fundamentals and applications of remote sensing;
2. Second, elective courses that cover a range of courses that cover fundamental physics, data analysis methods, and application areas.

A total of twelve credit hours are required to obtain the certificate, including at least two core courses. Nine of the credit hours must be at the 6000 level or above.

Area 1: Core Courses

Code	Title	Credit Hours
CP 6531	Introduction to Remote Sensing	3
EAS 4430	Remote Sensing and Data Analysis	3
EAS 4460	Satellite and Radar Meteorology	3
EAS 6145	Remote Sensing of the Atmosphere and Oceans	3

Area 2: Electives

Code	Title	Credit Hours
AE 6353	Orbital Mechanics (AE 6353 is a pre-requisite for AE 6354)	3
CEE 6222	Hydrometeorology	3
CEE 6462	Signals and Inverse Problems in Civil Engineering	3
CEE 6483	Geotechnical Image and Spatial Analysis	3
CP 6521	Advanced Geographic Information Systems	3
EAS 4510	Exploration Geophysics	3
EAS 4520	Seismic Methods in Exploration Geophysics	3
EAS 6134	Inverse Methods and Time Series Analysis in Earth and Atmospheric Sciences	3
EAS 8803	Special Topics (may be taught as Atmospheric Radiative Transfer)	3
EAS 8803	Special Topics (may be taught as Optical Techniques in Atmospheric Sensing)	3
ECE 6272	Fundamentals of Radar Signal Processing	3
ECE 6780	Medical Image Processing	3

Courses in Development

AE/EAS 4XXX: Designing a UAV for Remote Sensing Applications - This course is currently being planned and EAS recently received a NASA grant to provide education in this subject area.

EAS 6XXX: Earth Science/Geological Applications of Remote Sensing - A new faculty member in EAS geodetic remote sensing will be creating this course. It probably will include Global Positioning System (GPS) applications

Other new courses on remote sensing may qualify as electives for this certificate with approval by the Remote Sensing Certificate, Dr. Irina Sokolik.