Date: June 29, 2010
Course Number: ERE 566
Course Title: Introduction to Global Positioning Systems

☐ New Course  OR  ☒ Changes in existing course (check all that apply):

☐ Prefix
☐ Number
☐ Credits
☒ Title

☐ Description
☒ Pre-requisite(s)
☒ Co-requisite(s)

☐ Shared Resources
☐ Course Format
☐ Content
☐ Semester Offered

This course meets the General Education standards in the following knowledge and skills area (check all that apply):

☐ American History
☐ Humanities
☐ Other World Civilizations
☐ The Arts
☐ Mathematics
☐ Social Sciences
☐ Basic Communication
☐ Natural Sciences
☐ Western Civilization

Prequisites or co-requisite requirements:

☐ Prerequisites:
☐ Co-requisites:

Institutional Impact:

Anticipated Enrollment: 5 per semester

Technology and Classroom Resource Demands:

Require classroom equipped for instruction with computer projection capabilities, internet connectivity and whiteboard or chalkboard. Exercises require access to GPS devices.

Computing Resources:

Require access to computers with specialized software to download GPS data.

Library Resources:

None

Transportation Requirements:

None

Forest Properties or Field Practicum Facilities Required:

None
Health and Safety Considerations:

Conditions or situations present in association with the course?

1. **Will substances with any of the following properties be used during instruction?** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?  
   - Yes / No  
   - No

2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).  
   - Yes / No  
   - No

3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).  
   - Yes / No  
   - No

4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).  
   - Yes / No  
   - No

5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).  
   - Yes / No  
   - No

6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).  
   - Yes / No  
   - No

7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**  
   - Yes / No  
   - No

8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)  
   - Yes / No  
   - No

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

**CATALOG DESCRIPTION** (Please provide using the precise format currently used in the ESF catalog, please do not exceed 500 characters):

Three hours of lecture per week for the last third of the semester. An introduction to the theory and practice of performing global positioning system (GPS) measurements. Comparison of accuracy potential for different GPS equipment and techniques. Exploration of error sources that reduce the accuracy of GPS measurements. Collection of GPS data. Fall.
DETAILED COURSE DESCRIPTION

COURSE:  ERE 566 – Introduction to Global Positioning Systems
1 Credit Hours – Fall Semester
3 Hours Lecture Per Week for last third of semester
Prerequisite(s): none

SCOPE:

1. Level of Instruction:
   a. ERE 566 is an introductory graduate level course.

2. Relation to curriculum or to other ESF or Syracuse University courses:
   a. ERE 566 is an elective course. This course is open to all disciplines at ESF and SU if space allows.
   b. Shared resource requirements: Lectures are co-taught with a portion of ERE 371

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Describe the fundamentals of GPS measurements
2. Compare the potential accuracy of different GPS equipment and techniques
3. Explain the sources of error that contribute to reduced accuracy in GPS
4. Operate a mapping grade GPS unit

MAJOR CONCEPTS OR METHODOLOGIES:

1. Theory and practice of making measurements using global positioning system (GPS) instruments
2. Equipment and techniques available for GPS data collection
3. Accuracy potential for different approaches
4. Suitable applications of GPS technology
5. Error sources that reduce GPS measurement accuracy

CATALOG DESCRIPTION (Please provide using the precise format to be included in the ESF catalog, please do not exceed 50 words)

ERE 566. Introduction to Global Positioning Systems (1)

Three hours of lecture per week for the last third of the semester. An introduction to the theory and practice of performing global positioning system (GPS) measurements. Comparison of accuracy potential for different GPS equipment and techniques. Exploration of error sources that reduce the accuracy of GPS measurements. Collection of GPS data. Fall.

Prerequisite(s): none

COURSE HISTORY:

This course has been taught over the last three years as ERE 596 Section 10. The version of the course offered over this period updated and replaced the previously approved version of ERE 556.

Revised Draft: 4 February 2010