University of Arkansas - Fort Smith
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General Syllabus

UAS 1203 - GPS GNSS Fundamentals

Credit Hours: 3 Lecture Hours: 2 Lab Hours: 2

Effective Catalog: 2021-2022

I. Course Information

A. Catalog Description

Fundamental concepts of the Global Positioning Systems (GPS) and Global Navigation Satellite Systems (GNSS).

B. Additional Information

This course introduces the theory, concepts and technology of GPS and GNSS including markets and civil applications. Students will also be introduced to the basics of map reading and land navigation.

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of this course, the student will be able to:

1. Articulate and evaluate the theory behind GPS/GNSS technology and navigation.
2. Define and describe the fundamentals of satellite navigation.
3. Describe GNSS markets and civil applications.
4. Define and categorize maps, grids and navigation systems.
5. Classify different types of position coordinate systems
6. Describe and evaluate multi-path errors.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills
Critical Thinking: Students will compare information from varying sources in order to evaluate global positioning systems and global navigation systems.

Quantitative Reasoning: Students will apply mathematical and scientific reasoning when reading and analyzing models for GNSS systems and theory.

Global & Cultural Perspectives
Students will reflect upon cultural differences and their implications concerning GPS and GNSS for interactions with people from cultures other than their own.

III. Major Course Topics

A. GPS/GNSS theory and principles
B. Fundamentals of Satellite Navigation
C. GPS space, control and user segments
D. Regional SATNAV System information
E. Performance of stand-alone GNSS
F. Markets and civil applications of GNSS
G. Map reading basics and land navigation systems
H. Multi-path errors