

# QEP

## Incorporation of GPS (Global Positioning System) into the Construction Program's Surveying Course

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Construction Surveying Course 2006

Glenda Mayo (gmayo@uwf.edu)

Engineering and Computer Technology

(Adjunct – Oscar Pittman)

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# Construction ALC – QEP & 4 Domains

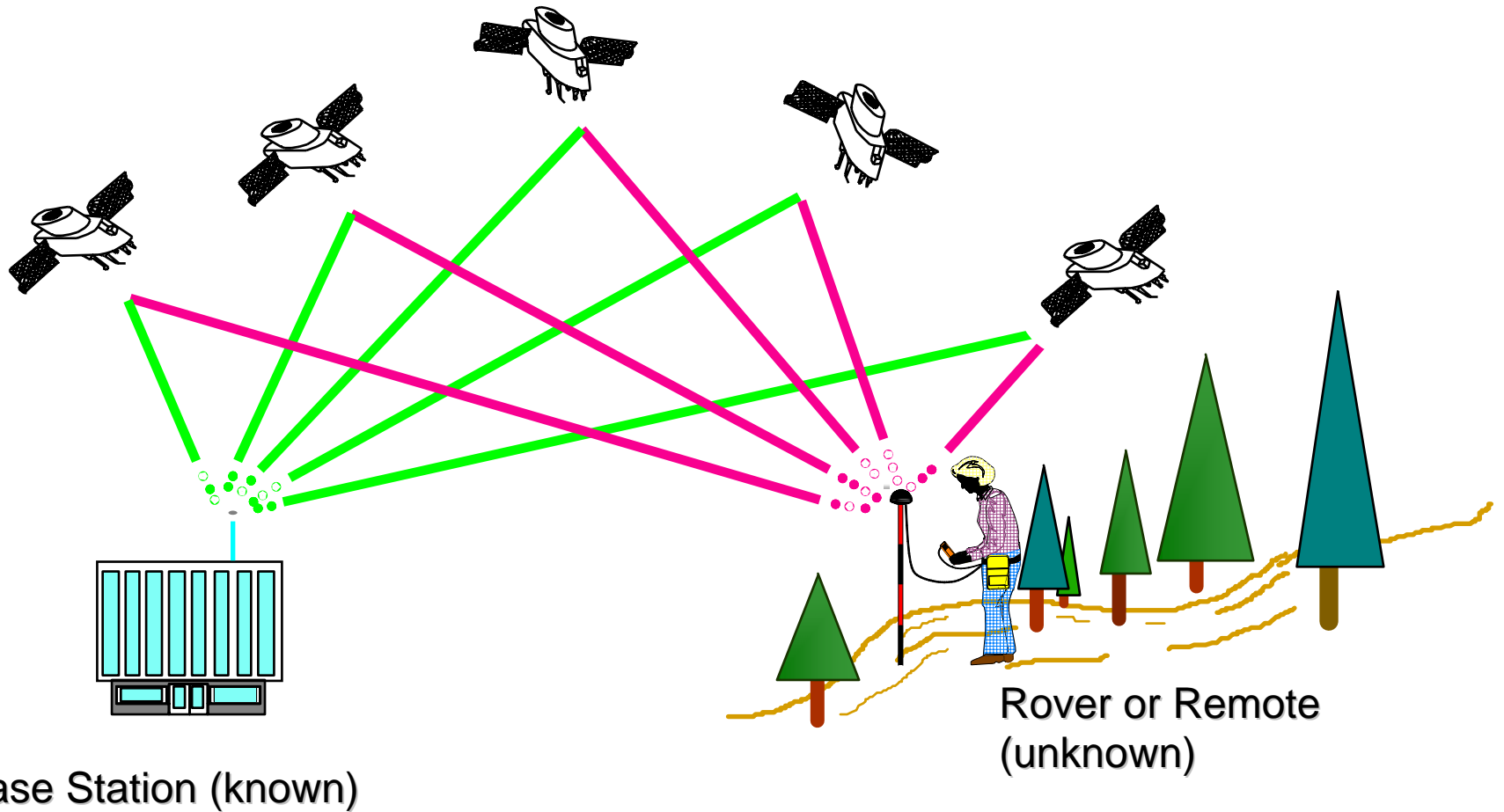
- **Content**
    - Recognize, describe, and apply engineering technology construction concepts and processes in work environments
    - Use professional terminology accurately
    - Describe career opportunities available in the profession
  - **Critical Thinking**
    - Analyze real-world engineering construction problems comprehensively
    - Conduct appropriate research to design and develop construction plans
    - Design, develop, and implement appropriate construction solutions
  - **Communication**
    - Communicate effectively with clients, end-users, and customers orally and in writing
    - Use technology effectively
    - Integrate technology tools (e.g., computer-assisted drawing, surveying, and site layout applications) into communications skills repertoire
  - **Project Management**
    - Work with others effectively to accomplish construction projects
    - Deliver engineering technology solutions on time
    - Identify accurately own strengths and weaknesses as a problem-solver
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# What is GPS (Global Positioning System) and what does it provide?

- The Global Positioning System (GPS) is a precise worldwide radio-navigation system, and consists of a constellation of satellites and their ground stations, operated and maintained by the U.S. Department of Defense (DOD).
  - The GPS systems allows users to gather longitude, latitude, and altitude data from a series of satellites and base stations to accurately plot earth based positions.
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# DGPS in the Field



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# Why would this benefit our students?

- Technology

  - Provides technology that will provide the employer with a level of expertise they wouldn't typically otherwise have on staff

- Utilized for more than just construction

  - Data collection for site developments

    - Utility

    - Landmarks (Government employees)

    - Disaster recovery techniques

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# QEP Project – 3 Goals

- Procure GPS equipment and implement GPS technology into the Construction Program
  - Strengthen the program's relationships with other users of the same technology on campus
  - Provide for technology-related learning outcomes in existing surveying course.
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# Goal Number 1

## Implementation of GPS Equipment into the Construction Program

- The construction field has become more technical. Our program is working to re-align student learning outcomes to newer technologies.



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# Goal Number 2

## Strengthen Partnerships

- **Architectural and Engineering Services**

  - campus map

  - underground utilities

  - demonstration house

- **Environmental Studies**

  - agreement to “rent” equipment

  - continuing education events

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# Goal Number 3

## Student Learning Outcomes

- Direct use and application of transit versus GPS technologies
  - Analyze and use data collected
  - Care and storage of equipment
  - Incorporate previous AutoCAD course skills
  - Generate Deliverable
    - Project Portfolio
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# Utilizing the equipment



# Portfolio Project

- Students completed a comparison of survey work utilizing a transit versus the Trimble GPS equipment we received as a result of this grant.



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# What they had to say.....

- Additional information on the use of the GPS unit would have been very helpful.
  - Cards displaying the sequential entry steps for the GPS unit
  - During class time a PowerPoint presentation showing what the screen displays and how the information is stored or transferred
  - **MORE GPS UNITS**
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# How our overall QEP goals and objectives changed

- Real-time data
  - Student survey and portfolio comments
  - Advisory comments
  - Partnership developments
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# Action Items

- Assessment of student performance by faculty and experts through portfolio review
  - Revision of student learning outcomes and assessments based on data
    - Portfolio reviews (student performance)
    - Anecdotal data (observation of course activities)
    - Student perceptions and satisfaction (student surveys and comments)
    - Expert review (adjunct observations and comments)
  - Course revisions – to be implemented in Summer, 2007
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# Summary

- The QEP Grant provided seed funding to begin implementation of teaching industry cutting-edge technologies
    - Allowed ECT to begin constructive partnering with other GPS users
    - Provided a “trial” effort of implementation to revise learning outcomes to take advantage of new technologies and processes
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