South Central College

GIS 2842 Field Mapping with GPS

Course Outcome Summary

Course Information

Description	This course covers the strategies of using mapping grade and survey grade GPS equipment and software to electronically collect spatial features for use in the development of GIS and CAD projects. (Prerequisite: GIS 2840 or consent of the Instructor)
Total Credits	4
Total Hours	96

Types of Instruction

Instruction Type	Credits/Hours
Lecture	2/32
Lab	2/64

Pre/Corequisites

GIS 2840 or consent of the Instructor

Institutional Core Competencies

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Examine GPS data collection planning methods.

Learning Objectives

Develop data collection workflow models.
Acquire a proficiency of the development of GPS collection projects.
Develop project databases.
Adapt field data metadata standards to all GPS projects.

2. Develop proficiency with field data collection templates.

Learning Objectives

Acquire proficiency with the development of data dictionaries.
Explore feature data to attribute information relationships.
Practice data dictionary editing techniques.

Identify necessary feature data and attribute entities for various GPS projects.

3. Examine spatial feature collection practices.

Learning Objectives

Identify features to be collected.
Plan feature collection method.
Select proper feature collection format.
Prepare and maintain collection equipment.

4. Practice differential correction processes.

Learning Objectives

Determine differential correction method.
Configure differential correction software.
Acquire base station system information.
Apply differential correction to collected data.

5. Recognize real time data collection processes.

Learning Objectives

Determine required real time collection settings.
Configure equipment for real time collection.
Query mapped satellite report.
Download and maintain current almanac information.

6. Develop proficiency with Trimble Pathfinder Office.

Learning Objectives

Create GPS collection project in Pathfinder Office.
Transfer data to and from GPS handheld unit.
Use map tools to analyze collected data.
Export collected data in proper requested formats.

7. Develop proficiency with Trimble Terrasync Firmware.

Learning Objectives

Load Terrasync via mobile device synchronization.
Assign default collection settings.
Configure coordinate systems.
Create collection project.
Configure collection variables.

8. Develop proficiency with data transformations.

Learning Objectives

Transform data between datums.
Transform data between coordinate systems.
Transform data between units of measure.
Transform data between software platforms.

9. Identify end user requirements.

Learning Objectives

Collect and export data for use in ArcGIS.
Collect and export data for use in AutoCAD Civil 3D.
Collect and export data for use in Microstation.
Collect and export data in configurable ASCII format.

10. Develop proficiency with GPS collection standards.

Learning Objectives

Practice proper equipment setup.
Adhere to accuracy standards.
Recognize the limits of the equipment.
Develop standard collection documentation records.

11. Differentiate between projected and geographic coordinate systems.

Learning Objectives
Manipulate data between various coordinate systems.
Project data between various coordinate systems.
Append data from various coordinate systems.
Edit data from various coordinate systems.

12. Utilize raster data for GPS collection.

Learning Objectives
Transform raster data for use in GPS collection.
Convert standard raster data into usable formats.
Map raster data for field data collection.
Manipulate raster data for collection enhancements.

13. Discover GPS use within local and state government.

Learning Objectives
Search state and local government data storage locations.
Review federal and state GPS standards.
Identify federal, state and local government collection practices.
Data share with federal, state, and local governments.

14. Examine GPS data formats.

Learning Objectives
Manipulate GPS data within a GIS environment.
Manipulate GPS data within a CAD environment.
Manipulate GPS data within a database environment.
Manipulate GPS data within a spreadsheet environment.

15. Apply safe data collection field practices.

Learning Objectives
Develop safe data collection practices.
Identify potential field hazards.
Identify safety equipment needed during data collection.
Review industry safety standards.

16. Apply GPS project management practices.

Learning Objectives
Develop GIS project strategic plans.
Develop resource planning diagrams.
Identify project needs.
Identify project cost.

SCC Accessibility Statement

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