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Common Course Numbering System

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Course: GIS 261
Title: GIS Survey II
Long Title: GIS Survey II
Course Description: Examines applied surveying operations and mapping incorporating survey measurements, statistical measures, error assessment and applied survey process.
Min Credit: 3
Max Credit:

Course Notes: NCE 3.2.15 JLG
Origin Notes: FRCC

STANDARD COMPETENCIES

1. Use the principles and procedures of plane surveying for data collection, mapping, and construction layout;
2. Analyze and reduce survey field measurements to produce a topographic map;
3. Assess the accuracy and precision of field measurements;
4. Evaluate the sources of systematic and random errors in those measurements;
5. Determine the suitability for calculating derived quantities;
6. Create professional documents with proper grammar and syntax as a member of a team;
7. Demonstrate the procedures of surveying field data collection (including the use of many types of equipment);
8. Apply surveying computations and adjustments and surveying data representation;
9. Implement field and stadia traverse;
10. Complete area computations;
11. Describe and demonstrate the operation and use of field survey instrumentation;
12. Perform Global Navigation Satellite Systems (GNSS) survey.

TOPICAL OUTLINE

I. Traverse

- a. Computations
 - b. Coordinate Transformations
 - c. Accuracy and Specifications
 - d. Measurement Omission
- II. Area Calculations
- a. Methods
 - b. Offsets
- III. Map Projections
- a. Types of Projections
 - b. Datum
 - c. Computation of Coordinates
 - d. Conversion of Coordinates
- IV. Global Navigation Satellite Systems
- a. Definitions
 - b. System Components
 - c. Positioning Methods
 - d. Errors
- V. Spatial Information Systems
- a. Coordinate References
 - b. Contours
 - c. Digital Elevation Models
 - d. Cartography
 - e. Topography
 - f. Map Contents
- VI. Control Survey
- a. Planning
 - b. Horizontal Control
 - c. Vertical Control
 - d. Precision
- VII. Route Surveying
- a. Planning
 - b. Control
 - c. Curve Geometries
 - d. Cross Sections
 - e. Volumes
- VIII. Construction Surveying

- a. Alignment
- b. Grade
- c. Precision
- d. Highways
- e. Streets
- f. Pipelines
- g. Buildings
- h. Bridges
- i. As Built Surveys

IX. Land Survey - History

- a. Kinds of Land Surveys
- b. Monuments
- c. Property Records

X. Land Survey - Methods

- a. Property Description
- b. Metes and Bounds Description
- c. PLSS
- d. Subdivision

XI. Land Survey - Legal

- a. Legal Authority of the Surveyor
- b. Liability of the Surveyor

XII. Types of Survey

- a. Field Records
- b. Original Survey
- c. Resurvey
- d. Subdivision
- e. City
- f. Cadastral
- g. Public Lands

Course Offered At:

Front Range Community College FRCC

RELEASE: 8.5.3

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