



PRINCIPLES AND PRACTICE OF SURVEYING Exam Specifications

Effective Beginning with the April 2013 Examinations

- The exam is a 6-hour closed-book exam. It contains 67 multiple-choice questions in the 4-hour morning session and 33 multiple-choice questions in the 2-hour afternoon session. Examinee works all questions.
- The exam uses the US Customary System (USCS) of units.
- The exam is developed with questions that will require a variety of approaches and methodologies, including design, analysis, and application.
- The knowledge areas specified as examples of kinds of knowledge are not exclusive or exhaustive categories.

Approximate
Percentage of
Examination

I. Standards and Specifications

12%

- A. Federal statutes, laws, rules and regulations
- B. State/local statutes, laws, rules and regulations
- C. Monumentation laws and ordinances
- D. U.S. Public Land Survey System
- E. American Land Title Association/American Congress on Surveying and Mapping (ALTA/ACSM) surveys
- F. Geodetic control network accuracy standards
- G. Federal Geographic Data Committee (FGDC) standards (digital mapping)
- H. U.S. National Map Accuracy Standards (analog mapping)
- I. Federal Emergency Management Agency (FEMA)

II. Legal Principles

26%

- A. Common/case law boundary principles
- B. Sequential and simultaneous conveyances
- C. U.S. Public Land Survey System
- D. Controlling elements in legal descriptions
- E. Riparian and littoral rights
- F. Property title issues (e.g., encumbrances, interpretation, deficiencies)
- G. Sovereign land rights (e.g., navigable waters, eminent domain)
- H. Prescriptive rights/adverse possession
- I. Easement rights
- J. Parol evidence

III. Professional Survey Practices

26%

- A. Public/private record sources
- B. Project planning (e.g., photogrammetric, geodetic, boundary)
- C. Control datums
- D. Encumbrances (e.g., easements, rights of way, mineral rights, subsurface rights)
- E. Control network accuracy standards
- F. Supervision of and responsibility for field procedures
 - 1. Instrument operations and usage
 - 2. Monumentation (e.g., identification, classification, perpetuation)

3. Vegetation identification (e.g., wetlands, bearing/corner trees, first line of vegetation, aquatic and upland species)
4. Survey control (e.g., boundary, topographic, photogrammetric)
5. GPS operations
6. Construction surveying
- G. Supervision of and responsibility for the application of surveying principles and computations
 1. Mapping methods and/or projections
 2. Graphical terrain representations
 3. Geoid, ellipsoid, and orthometric heights
 4. State plane or other coordinate systems
 5. GPS data reduction and analysis
 6. Control network calculations, analysis, and adjustments
 7. Bearings/azimuths
 8. Area/volume calculations
 9. Horizontal and vertical alignment calculations
 10. Construction surveying calculations (e.g., plan interpretation)
 11. Data preparation for importation into geographical information systems (GIS)
- H. Grading and site preparation
- I. Survey maps/plats
- J. Survey report
- K. Descriptions
- IV. **Business/Professional Practices** **20%**
 - A. Project planning (e.g., parameters, costs, budgeting)
 - B. Contracts
 - C. Risk management (e.g., liability, safety procedures, insurance)
 - D. Ethics
 - E. Communications (oral, written, graphical)
 - F. Quality assurance procedures
 - G. Activities, background, and skills of related professions (e.g., engineers, lawyers, architects, planners)
- V. **Types of Surveys** **16%**
 - A. American Land Title Association/American Congress on Surveying and Mapping (ALTA/ACSM) surveys
 - B. Control and geodetic surveys
 - C. Construction surveys (e.g., construction calculations and staking)
 - D. Hydrographic surveys (e.g., elevations of submerged surfaces)
 - E. Boundary surveys
 - F. Route and right-of-way surveys
 - G. Topographic surveys (e.g., scanning, photogrammetry, LiDAR, field)
 - H. Condominium surveys
 - I. Subdivision surveys
 - J. Record drawing (as-built) surveys