What to Expect on the CST Exam (Level 1)

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A recording of this presentation will be shared with all registrants.
Stick around for an interactive Q&A session at close!

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What is a Certified Survey Technician?

CST is a unique four-level certification program from NSPS for surveying and mapping technicians. The program uses “work elements” to define testing parameters.

Minimum qualifications at each level are based on hours of experience:

- **Level I** – Entry Level
- **Level II** – Minimum of 1.5 years experience
- **Level III** – Minimum of 3.5 years experience
- **Level IV** – Minimum of 5.5 years experience but must already hold a Level III cert

_LICENSEED SURVEYORS MAY START AT LEVELS I, II, III OR IV_

CST supports survey technicians in public and private practice via:

- **Official recognition from NSPS of an individual’s technical abilities**
- **Providing employers with a way of evaluating and placing applicants**
- **Offering objectives for advancement (career planning)**
CST Exam Basics

How much does the exam cost?
• $180.00 for individuals
• $120.00 for active students, military or veterans
• Group discounts (for organizations of 10 or more) are available
• In order to advance through the program, your certification must remain active

Quarterly testing is offered nationwide (paper or online)
• Examinations run from four to six hours in length (Level I = four hours)
• Multiple choice questions for all levels (Level I = 200 Qs)
• If failed, no reapplication is necessary (within 1 year); must pay extra exam fee
• Passing grade = 70%; Pending = 66-69%; Retake = 65% or less
• Testing method and location (proctor) confirmed via NSPS
Arranging the exam

• Online exams will be offered any weekday and on the 2nd Saturday of each month. The exam is taken in accordance with CST testing policies at a supervised workstation. Benefits include a wider potential testing area & immediate results.

• Having a proctor and location speeds the application process. Any college instructor, professional engineer, registered land surveyor, or any disinterested third party with no potential conflict of interest can be a proctor for a CST exam.

• Applicants requesting a paper exam can still take their exam at a suitable testing center. However, if an applicant can identify a suitable location and has an approved proctor, an online exam can be administered at an approved time and location.
Calculator Policy

• Programmable and non-programmable calculators are permitted during CST exam testing if they are: silent, without external power or without communication links such as Bluetooth, infrared and wireless technology. In addition, allowed calculators shall not have external memory cards, modules, USB flash drives or ports for such devices.

• The use of any device having a QWERTY keyboard / keypad during the exam is strictly prohibited. The following devices are also prohibited, whether or not they have a QWERTY keyboard / keypad function: Palmtop, Laptop, Tablet, Handheld or Desktop computers, Personal readers, Data Banks, Data Collectors, and Personal Data Assistants (PDA). Also, cell phones, cameras, scanners, video recorders or any other copying devices are prohibited. Calculators with other style alphanumeric keyboard / keypads are acceptable.

• The HP41 and HP48 are not allowed because they contain a communication link (infrared port) and an external memory card port. Notwithstanding the above, the NSPS CST Board or its designees have the right to prohibit the use of any device which, in the opinion of the Board, poses a threat to exam security.
Preparation is your responsibility

• **Effective preparation is critical.** Past test results have shown that many examinees with extensive experience and, in some cases, even formal surveying education did not pass an examination.

• The CST Exam sequence is a challenging, timed test. It is an *open book examination* which tends to provide examinees a false sense of security.

• You must be prepared to move purposefully through 4 or more hours of testing. Study, review, and practice in the Work Element areas is important to prepare you for the questions. In the past, this review was left solely to the examinee.

• Learn CST helps examinees review and test their knowledge of each level’s work elements, locate additional resources and plan for the exam more effectively.
How does Learn CST work?

• LearnCST.com offers online training for CST levels I & II with level III currently available in “beta”. Our goal is to guide you through key study areas and other info you need to become familiar with. Material and quizzes are updated regularly.

• Our virtual classroom follows a quarterly format (i.e. Jan-Mar, Apr-Jun), offering students a chance to train for 90 days then sit for an exam at the first available opportunity. While you can access training 24/7/365 and proceed at any pace, the quarterly format provides a structure for those that wish to follow a schedule.

• Each work element ends with an online quiz. As you master the material, you move on to additional elements and more challenging items until it’s clear you’re ready to schedule an exam.

• Learn CST offers weekly class chats, monthly instructor “office hours”, discussion forums and more. Download a class prospectus for schedules and more.
Overview of Work Elements (Level I)

**Level I Technicians** are required to demonstrate knowledge of basic first aid skills and safety requirements. The individual in this position possesses a basic knowledge of field operations and types of surveys as well as familiarity with field equipment and procedures used in these functions. Additional skills required include computational ability, survey note taking, drafting/CAD and map reading. Test problems are taken from the following work elements:

1) *Types of Surveys* (10 Qs)
2) *Field Equipment & Instruments* (41 Qs)
3) *Survey Computations* (50 Qs)
4) *Control Points: Horizontal & Vertical* (6 Qs)
5) *Field Operations* (21 Qs)
6) *Field Notes* (5 Qs)
7) *Plan Reading* (17 Qs)
8) *First Aid & Safety* (20 Qs)
9) *Drafting/CAD* (17 Qs)
10) *Electronic Instruments* (8 Qs)
11) *Surveying History* (5 Qs)
Work Element 1

• *Types of Surveys* (10 questions)

Knowledge of the different types of surveying and the basic differences between them.

Learn CST addresses the following types of surveys: Geomatics, As-Built, Boundary, Construction, Control, Engineering, Geodetic, Hydrographic, Leveling, Photogrammetry, Stadia, Topographic and more. Bonus workbooks for the US Public Land System (PLSS) + Metes and Bounds survey systems included.
Work Element 2

• *Field Equipment & Instruments* (41 Questions)

Knowledge of the care, cleaning and use of surveying tools and equipment, including field radios. Understand the names, purpose and parts, setup, transport and the need for calibration of various surveying field instruments. Some historical knowledge is required.

LearnCST addresses General Principles, Routine Care, Field Adjustments, Care of Tools, Care of Total Stations, EDM, GPS, Tribrachs, Tapes, Auto Levels, Bull's Eye Rod, Radios, Historic Survey Instr., Chains, Compass, EDMs, Theodolite and more. 3D Laser Scanners forthcoming.
Work Element 3

• *Survey Computations* (50 Questions)

Knowledge of mathematics + measurements relating to surveying (including linear, angular, elevations and unit systems conversion).

Learn CST addresses Angle Addition & Subtraction, Angle Conversion, Types of Angles, Bearings, Azimuths, Area Calculations, Volume Calculations, Unit Conversions, Map Scale and more.
Work Element 4

• *Control Points: Horizontal & Vertical* (6 Questions)

Knowledge of types of survey control points and their differences.

LearnCST addresses Horizontal and Vertical control, Accuracy, Monumentation, Federal Agencies, Reference Datums, NGS Data Sheets, GNSS basics and more.
Work Element 5

• **Field Operations** (21 Questions)

Knowledge of the field duties of a Survey Technician. Such duty areas may include line clearing, establishing points, taping, leveling and compass reading.

Learn CST addresses core knowledge areas and of the field duties of a surveying technician.
Work Element 6

• **Field Notes** (5 Questions)

Knowledge of the basic types of surveying field notes.

Learn CST addresses Leveling, 3-Wire Leveling, Profile Leveling, Cross Section Leveling, Traverse, Open Traverse, Directional, GPS Field Notes, GPS Obstruction Charts and more.
Work Element 7

• *Plan Reading* (17 Questions)

Knowledge of the types of surveying maps and the ability to obtain basic information from these maps.

Learn CST addresses Engineering Site Plans, Road Profiles, Utility Profiles, Record Plats and more.
Work Element 8

• **First Aid & Safety** (20 Questions)

Basic knowledge of treatment practices for a variety of medical emergencies. Knowledge of traffic control and safety procedures for surveying and construction operations, including Occupational Safety and Health Administration (OSHA) standards.

Per Learn CST: Everyone on a survey crew is responsible for safety. Crew members should have a basic knowledge of first aid. Learn CST addresses brief summaries of some accident and first aid issues that may be encountered in the field. This is not intended as a comprehensive treatment of these topics and are not intended as expert medical advice. They are simply suggestions on the recognition and treatment of common field issues.
Work Element 9

- **Drafting/CAD** (17 Questions)

Knowledge of basic drafting and CAD skills, tools and procedures.

Learn CST addresses basic drafting and CAD skills, tools, and procedures. Tech tutorials from leading survey software providers forthcoming.
Work Element 10

- **Electronic Instruments** (8 Questions)

Knowledge of the handling, setup and care of electronic instruments and their accessories.

Learn CST addresses the handling, setup, and care of electronic instruments and their accessories. Video and tech tutorials from leading measurement and positioning tech vendors forthcoming.
Work Element 11

• *Surveying History* (5 Questions)

Knowledge of the historical development of survey procedures and practices.

Recommended Reading

There are many surveying and mapping textbooks worthy of your time. We advise purchasing at least one of the following—you can find most if not all of the books below online (via Amazon.com, etc.). Again, the CST exam offers an open-book policy.


Land Survey Systems, (Edwards Brothers, 1985), McEntyre, John G.


Definitions of Surveying and Associated Terms (ACSM, 1978)
In closing...

Whether you’re just starting out or have been in the profession for years, CST provides an excellent opportunity to distinguish your technical abilities.

With that in mind: Learn CST (or any resource, for that matter) cannot guarantee that you’ll pass the CST exam. To help you study we’ll guide you through each work element and share best practices on preparing for the examination.

The open book CST exam tests your ability to search for and find information. It assumes some basic technical knowledge and mathematical ability (more as one advances through the levels) but you’re not expected to know all the answers by heart. Examinees must be flexible and adaptive.

Self-enroll for training @ www.learnCST.com
Questions?

Submit questions now or email us @ info@learncst.com

We’ll email a link to the recording within a few days. Thanks for spending time with us!