

Certification Exam Information

Arrive to the Exam Early

Arrive at least 30 minutes early to the exam site to give yourself time to recover from unexpected disasters — e.g., no pencils, a dead calculator, difficulty finding the exam site — and because the exam proctor will require some time to distribute exam packages and complete administrative tasks.

Bring Identification

You will need to provide the exam proctor a photo id.

Acceptable and Unacceptable Exam Supplies

This is a closed-book, “no notes,” “no computer” exam. Examinees may bring writing instruments, erasers, blank paper, and acceptable calculators to the exam. Graphing calculators are not acceptable. Examinees may loan or borrow acceptable calculators for the duration of the exam but may not share calculators “back and forth” during the exam.

Calculators with logarithm, universal power, memory, and parentheses keys invariably also have statistical function keys—e.g., mean, standard deviation, correlation, linear regression keys. Inasmuch as examinees may find logarithm, universal power, etc. capabilities useful we allow them to bring these calculators to the exam. However, it is not acceptable to use preprogrammed statistical functions. Rather than disallowing these calculators in their entirety we disallow only their automated statistical capabilities.

Exam Preparation

Preparation entails investing time in reviewing, relearning, or perhaps encountering for the first time, the core concepts and methods of cost estimating and cost analysis. It may therefore prove useful to start studying a month or two ahead of time, even if only to ferret out what you don't know. We've listed below some of the areas the exam may cover to help you in this preparation.

The list is not a comprehensive and detailed study guide; some exam questions may address areas not in the list; some exams may not address all of the areas. Nor does the list imply the relative emphasis the exam will place on a given area. However, the list should give you a sense of the potential breadth of the exam's coverage.

1. Basic terminology

Fixed cost, variable cost, semi-variable cost, direct cost, indirect cost, overhead cost, recurring cost, nonrecurring cost, sunk cost, opportunity cost, G&A cost.

2. Basic math:

Exponents and logarithms; the slope and intercept of the line through specified points; linear interpolation, setting up and solving equations for specified unknowns — e.g., simultaneous equations; rounding, absolute value.

3. Probability and statistics:

Cumulative, density, and probability mass functions; continuous and discrete random variables; “basic characteristics” of uniform, triangular, normal, lognormal, and beta probability distributions; the mean, median, mode, standard deviation, variance, correlation, and coefficient of variation; central limit theorem; and hypothesis tests and statistical significance. **The exam will provide any formulas for “probability functions,” correlations, and hypothesis tests. Formulas associated with the other foregoing concepts are fair game.**

4. Linear regression:

Calculating and interpreting a linear regression model given sample data. **The exam will provide the formulas for the slope and intercept of a simple linear regression line.**

5. Contract types and related concepts:

Fixed-price type, cost type, incentive fee, time-and materials, cost plus percentage cost, cost plus award fee contracts, their respective “basic characteristics”, and related concepts—e.g., target, most optimistic, and most pessimistic cost and fee; share ratio, ceiling, point of total assumption; fee and profit calculations for incentive contracts.

6. Pricing and related concepts

Price, fee, profit, profit rate, and return on investment (ROI); ROI and break-even calculations—e.g., determining the cost, volume, or price that achieves the ROI or break-even objective.

7. Cost improvement/learning curves

Unit theory versus cumulative average theory; theoretical first unit cost, learning slope, cost of the n th unit, cost of n units.

8. Net present value.

9. Simple and compound interest.

10. Inflation indices.

11. Weighted averages and composite rates—e.g., composite labor rates.

12. Depreciation and depreciation methods.

13. Earned value management

“Basic terminology” and formulas.

14. Software development cost estimating basics.

Finally, examinees often ask us to recommend best study materials. Unfortunately, there is no one best resource to aid your test preparation. Among the materials that have been helpful in the past:

- **Cost PROF, Programmed Review of Fundamentals.** Available from the SCEA National office. See <http://www.sceaonline.net/Development/CostProf.pdf> for price and ordering information.
- SCEA glossary. See http://www.sceaonline.net/Glossary/Glossary_1.htm, *Cost Estimator's Reference Manual* (below), or *Society of Cost Estimating and Analysis Glossary of Terms* (available from the SCEA National office—see http://www.sceaonline.net/Development/development_main.htm for price and ordering information).
- *Cost Estimator's Reference Manual.* Rodney Stewart, Edward M. Wyskida, James D. Johannes (editors). Wiley Interscience, 1995 (or the earlier edition; less expensive as used and out-of-date).
- Selected Air Force Institute of Technology cost estimating and pricing course materials, available from SCEA for a fee—e.g., *Cost Analysis: A Complete Text* (available from the SCEA National office — see http://www.sceaonline.net/Development/development_main.htm for price and ordering information).
- Various academic, corporate, and government Web sites on cost estimating and cost analysis fundamentals. Search the Web for specific key words. For example, see:
 - <http://www.acq.osd.mil/pm/> on earned value; for example, *Earned value: clear and simple* at http://www.acq.osd.mil/pm/paperpres/wilkins_art.pdf
 - http://www.acq.osd.mil/dp/cpf/pgv1_0/pgchindex.html, the *Contract Pricing Reference Guide*; for example, *Establishing and monitoring contract types* at <http://www.acq.osd.mil/dpap/contractpricing/vol4chap1.htm>
 - <http://beginnersinvest.about.com/library/lessons/bl-depreciationexpense.htm>, the first page of a depreciation tutorial at the site *Investing for Beginners*; see a similar site by SAS at <http://support.sas.com/rnd/app/da/new/801ce/ets/chap11/sect6.htm>.
 - <http://www.maaw.info>, a tutorial on management accounting concepts, terminology, and techniques – *MANAGEMENT and ACCOUNTING WEB*, by James R. Martin, Ph.D., CMA.
- Sample exam questions at http://www.sceaonline.net/Certification/certification_exam.htm.

Exam Instructions

1. Don't open the exam package until the proctor signals the start of the exam.
2. You'll need to sit in an every-other-seat arrangement. If this is impossible, please arrange your seating so as to prevent inadvertent viewing of your or others' exam materials.
3. The exam has two parts.

The first exam part typically comprises multiple choice, true/false, and "choose as many" questions that focus on your knowledge of concepts.

“Choose as many”-type question will ask you to identify as many of the multiple choice alternatives as are true or as apply to the given question. At least one of the alternatives will be true or apply; as many as five of the alternatives will be true or apply. We will give you partial credit for each correctly circled alternative. For example, if three of the alternatives apply and two don't but you choose only two of the alternatives that apply and then one that doesn't we will give you 3/5 partial credit — you will lose 1/5 partial credit for failing to circle a correct alternative and 1/5 partial credit for circling an incorrect alternative. The one exception to this scoring situation will be if you circle no alternatives; we will give you no credit in this case. “None of the above” will be an incorrect answer in these questions.

The first part may also include “short answer” questions – e.g., that might ask you to give a formula, define a term, or explain a statement. Print your answer neatly on the answer sheet. Use the back of the sheet if necessary.

The second exam part typically comprises multiple choice questions that focus on problem solving.

4. You'll need to separately pass both exam parts to qualify for SCEA certification. You will pass an exam part by correctly answering at least 70% of its questions; we may augment this score with partial credit for work you've shown that demonstrates your understanding.
5. If you fail to pass only one exam part you will only need to retake and pass that part to later qualify for SCEA certification. The only limitation on retaking the “missing part” is that you will need to pass it within two additional attempts; after failing on two additional attempts you will need to retake and pass both exam parts to qualify for SCEA certification.
6. The exam will last for four hours—whether you're taking both exam parts or only one part. If you're taking both parts you can switch between the parts and allocate your time over them at your discretion.
7. The proctor should give you periodic time updates—how much time has passed and how much time is left to go—at least once an hour and more frequently during the last hour. However, you will have the ultimate responsibility for monitoring and managing your available time.
8. This is a closed-book, “no computer” exam. Bring writing instruments, erasers, blank paper, and acceptable calculators to the exam.

Graphing calculators are not acceptable under any circumstance. It is also not acceptable for you to use preprogrammed statistical functions. You may use calculators with these statistical capabilities but you may not use the capabilities themselves. This rule allows you to use calculators with other capabilities you might find useful—e.g., parentheses, logarithms, universal powers.

9. Each exam part comprises an exam booklet containing the questions and a matched answer sheet. Circle your answers on the answer sheets. We will not transfer answers from the exam booklet to the answer sheet for you. We will only grade the answer sheet.
10. We give full or partial credit for incorrect answers, but only if the examinee shows their work in the exam booklet or on a separate sheet of paper. Partial credit has made the difference between passing and not passing, particularly the second exam part.

11. We do not penalize for guessing. Therefore, there is absolutely no reason to hand in a test without an answer provided for every question. Examinees have failed the exam because they didn't give an answer for every question and a small number of correctly guessed answers would have made the difference. PROVIDE AN ANSWER FOR EVERY QUESTION BEFORE HANDING IN YOUR EXAM PACKAGE.
12. Feel free to take rest room breaks or "stretching breaks" as necessary.
13. When we start the test you should open your exam package, print the requested information on the cover of each exam booklet and print your name on each answer sheet. Verify that your exam package has exam booklets and answer sheets for as many test parts as you'll be taking. Also verify that your exam package includes an extra envelope with your name on it; you'll pack up all of your exam materials into this envelope when you're done—including exam booklets, answer sheets, and notes.
14. To protect the standardization of the exam administration the exam proctor will not answer any questions about exam questions. If a question looks defective—e.g., no answer among the multiple choices is correct—note the suspect question in a note on your answer sheet or on a separate piece of paper you'll return with your answer sheet and exam booklet. The exam proctor will only answer questions about the exam administration. The proctor will not interpret exam questions or suggest test strategies.
15. We take great pains to vary questions and question content between exams. If you recognize an exam question be aware that the correct answer is most likely different from the one you've seen earlier.

When You're Done or Time is Up...

1. Detach the certification exam survey from the exam booklet.
2. Put all other exam materials into the envelope we included in the exam package—including the exam booklets, the answer sheets, and any working notes. Write your name on this envelope if it isn't already there.
3. Seal the envelope.
4. Fill out the exam survey.
5. Hand in the envelope and exam survey.
6. Initial the examinee list next to your name as evidence that you handed in the completed exam.

Questions? Contact ...

Questions about schedules, locations, "special arrangements?" Contact Lenny Cheshire or Elmer Clegg at the SCEA National office at (703) 938-5090 or at lenny@sceaonline.net or elmer@sceaonline.net.

Questions about content, preparation, instructions, day-of-exam issues, results? Contact Mitch Robinson (SCEA Certification Director) at (703) 633-2170 or at mitch.robinson@wylelabs.com.