

Electrical Projects Cost Estimating Timed Syllabus

Section	Title	Questions	Minutes
1	<p>Key Goal and Expectations of Cost Estimates</p> <p>Next in importance to knowing project scope is estimating the project cost accurately, from the initial bid to project closeout.</p>	1	5
2	<p>Cost Estimators – Occupation View</p> <p>Construction projects and their cost estimates are big business in the United States. This session provides an introduction to the employment opportunities and anticipate growth for cost estimators.</p>	1	5
3	<p>Cost Estimating Fundamentals</p> <p>Developing a cost estimate is a process, many steps that include but not limited to: the purpose, project requirements, work activities, risks, assumption and exclusions, proposals, bids, invoicing, ect. Next this information must be captured in an accurate, comprehensive and timely manner.</p>	2	6
4	<p>Guidelines to Develop High Quality Electrical Construction Cost Estimates</p> <p>For company survival the cost estimates must be complete and accurate – not an easy job! This section provides recommendations on how to improve cost estimate accuracy.</p>	2	6
5	<p>Determine the Correct Labor Mix and Rate</p> <p>To establish a solid understanding of the project scope requires the cost estimator solicit the input of an integrated project team when possible, as a minimum costing input from construction managers and superintendents are mandatory.</p>	1	5
6	<p>Introduction - Project Management Areas of Competence</p> <p>This section list the common tools and techniques used to developed construction cost estimates.</p>	1	5
7	<p>Cost Estimate Types and Accuracy</p> <p>Cost estimating requires an iterative process of developing the monetary resources to complete project activities. Cost estimating is more than cutting and pasting from previous cost estimates or just assembling quotes received by the phone. This section provides the multiple steps necessary to develop the common types of cost estimates.</p>	1	5
8	<p>Cost Estimate Classes</p> <p>On large projects or design build projects, multiple estimates are often required as the technical maturity of the project develops. The typical estimate classes are described in this section.</p>	1	5
9	<p>Development Details for Cost Estimates</p> <p>Discussion on the main components for a construction project cost estimate is provided in this section, main components are: inputs, assembly, reviews, comment resolution, upper management input, establish the bid and updating of changes.</p>	2	7

10	<p>Requesting Quotes from Vendors, Suppliers, Consultants and Subcontractors</p> <p>Good quotes require the full intent of the design or scope be clearly disseminate. The detail and complexity of the documents will change depending on the delivery system employed, e.g., design/build, design/bid/build, fixed-price, time and material, etc.</p>	1	5
11	<p>Value Engineering</p> <p>Value engineering can be applied at any stage of the construction project. Value engineering is an important tool available to those looking to get a competitive edge on the competition's pricing.</p>	2	6
12	<p>Applicable Codes and Standards</p> <p>Construction is a high hazard industry that comprises a wide range of activities involving new installations, alterations and/or repairs. Construction workers engage in many activities that may expose them to serious hazards. OSHA provides workers and employers useful, up-to-date information on the construction industry.</p>	1	5
13	<p>Cost Estimator Ethics & Practices: Canons 1 – 5</p> <p>The ethical principles provide guidelines for professional estimators and estimators in training. Professionals with integrity have therefore deemed it essential to promulgate codes of ethics and to establish means of ensuring their compliance.</p>	2	6
14	<p>Cost Estimator Ethics & Practices: Canons 6 – 9</p> <p>The ethical principles and practices for professional estimators and estimators in training continues in this section.</p>	1	5
15	<p>Dos and Dont's with Cost Estimates</p> <p>Paramount to understanding key "dos and don'ts", of cost estimates is to consider the audience. Cost estimate information should be tailored commensurate with the receiver.</p>	1	5
16	<p>Minimize Cost Overruns</p> <p>The best ways to minimize cost overruns is to implement corrections early in project planning, designing and constructing phases. If the electrical rough-in of a shopping center has started it is imperative the cost estimator, project manager and electrical team monitor actual cost versus planned early.</p>	2	7
17	<p>Establish Baseline and Influence Potential on Cost</p> <p>Developing the resource loaded schedule (RLS) is typically not the sole responsibility of the cost estimator but their cost information is mandatory. Therefore, it is good for cost estimators to understand the fundamentals of the RLS and a project cost baseline.</p>	1	5
18	<p>Cost Reporting – Earned Value Management System</p> <p>Understanding earned value management system starts with the fundamentals of the S-curves. Reporting on construction progress frequently is mandatory and so is the accuracy of the reports.</p>	2	6

19	<p>Cost EAC and ETC</p> <p>The Estimate at Completion (EAC) is the current estimated total cost for authorized work. It equals Actual Cost of Work Performed (ACWP) plus the estimated costs to complete (Estimate To Complete (ETC)) the authorized work remaining.</p>	1	5
20	<p>Addressing Project Risk – Introduction and Main Components</p> <p>The cost estimate must identify the technical, schedule and cost risks. Each risk listed is assigned the appropriated risk handling strategy to reduce or eliminate impact of negative and positive events should they occur.</p>	1	5
21	<p>Addressing Project Risk – Plan and Assessment Report</p> <p>In this risk section, components for risk management plan, handling process, and assessment reporting are explained. Risk management requires cost the cost estimator must include in estimates and bids.</p>	1	5
22	<p>Addressing Project Risk – Grading Guidance</p> <p>Project risk concludes with a discussion on risk probability, consequence, grading, scoring and risk logging. Risk level are often summarized in a graphic matrix color-coded to denote relative severity.</p>	1	5
23	<p>Cost Estimating Software vs Manually</p> <p>Cost estimating can be done purely by hand with only paper, a scribe and the human mind. However, add in a hand held calculator then continue with automation of spreadsheets the cost estimator’s output increases and more bids per month can be submitted.</p>	1	5
24	<p>Professional Associations and Their Tools</p> <p>This section provides an introduction to the cost estimating organizations of the American Society of Professional Estimators (ASPE) and the American Association of Cost Engineers (AACE).</p>	1	5
25	<p>Training for Electrical Construction Cost Estimators – Introduction</p> <p>According to the U.S. Bureau of Labor Statistics, career requirements of most construction cost estimators are cited in this section.</p>	2	5
26	<p>Training for Electrical Construction Cost Estimators – Guidelines and Support</p> <p>Teaching cost estimating is a task that takes time even for a good teacher. If a good training capability is available in-house, then the company can train cost estimating, otherwise hire a professional.</p>	2	6
27	<p>Schools - Selection Guidelines</p> <p>Specific trade cost estimating is not common with all school estimating programs. However, students can enroll in related trade classes that offer some construction estimating knowledge in addition to the traditional trade knowledge.</p>	1	5
28	<p>Electrical Estimating Software Packages – Automation Benefits</p> <p>Cost estimators doing estimates on an envelope will find moving to a computer, even if only using Excel versus cost estimating software, an enormous time saver. Typing skills do not need to be fast.</p>	1	5

29	Electrical Estimating Software Packages – Suggested Packages Recommended electrical cost estimating software packages are mentioned in this selection.	1	5
30	Tips for Selecting Estimating Software Think of adaptability, ease of use, portability and reporting features when considering estimating software.	2	6
31	Building Information Models Building information modeling (BIM) is an intelligent 3D model-based process that gives architectures, engineers and cost estimators the insight and tools to more efficiently plan, design, estimate, construct and manage projects.	2	6
32	Common Errors of Cost Estimates and Bids Become aware of errors that are typical in many cost estimates.	1	5
33	Frequently Asked Questions – General Provides lessons learned for many frequently asked general cost estimating questions.	1	5
34	Frequently Asked Questions – Software Focus Provides lessons learned for many frequently asked questions on cost estimating software.	1	5
35	Analysis of Bids Bids are often too high or too low. Major contributors to bid outcomings are discussed in this section.	1	5
36	Impacts Due to Excessive Overtime There are many articles on the impacts of extended overtime on construction labor productivity. Common to most articles on overtime is a decrease in productivity as the number of hours worked per week increase and/or as duration of the overtime increases.	1	5
37	Labor Impacts – Beyond Overtime There are other impacts on productivity that the cost estimator must know besides excessive overtime. This section list some common factors that affect labor productivity on construction projects.	2	7
38	Summary of Key Course Topics Review of the key goals, guidelines, components and tips of good cost estimates and those that develop them.	1	5
Total Course Time:		50	204
Time Required to Complete Course:			200