COLORADO STATE UNIVERSITY GLOBAL

CMG400: CONSTRUCTION COST ESTIMATING

Credit Hours: 3

Contact Hours: This is a 3-credit course, offered in accelerated format. This means that 16 weeks of material is covered in 8 weeks. The exact number of hours per week that you can expect to spend on each course will vary based upon the weekly coursework, as well as your study style and preferences. You should plan to spend 14-20 hours per week in each course reading material, interacting on the discussion boards, writing papers, completing projects, and doing research.

Faculty Information: Faculty contact information and office hours can be found on the faculty profile page.

COURSE DESCRIPTION AND OUTCOMES

Course Description:

The course teaches ways to prepare competitive bids with detailed quantity takeoff and pricing of materials, labor, and equipment. The course provides a classification of work and quantity survey techniques as they relate to building construction. It also teaches analysis and determination of costs of construction operations including direct and overhead costs, cost analysis, and preparation of bid proposals. Students will have the opportunity to evaluate complete sets of drawings and specifications to reinforce their understanding of quantity takeoffs in preparing project cost estimates.

Course Overview:

Welcome to CMG400: Construction Cost Estimating. In this course, you will gain an understanding of the methods and techniques used to perform quantity takeoff and to prepare construction cost estimates. In addition, you will learn how you can read plans and specifications and how you can use on-screen takeoff tools such as Bluebeam to perform quantity takeoffs. You will also learn the most important considerations in estimating direct and indirect costs for excavation, concrete, masonry, metals, wood structure, thermal and moisture protection systems, doors, windows, finishes, and MEP work.

Course Learning Outcomes:

1. Define the cost-estimating process, its terminology, and purpose.
2. Develop various bid documents and terms as they relate to the construction cost-estimating process.
3. Define and develop accurate quantity takeoffs for various bid items.
4. Identify classification of work and quantity survey techniques.
5. Determine costs of construction operations, including direct and overhead costs, cost analysis, and preparation of bid proposals.
6. Evaluate construction drawings and specifications, and use them in an effective manner when preparing cost estimates.
7. Identify key construction trades and ways to estimate each type of construction work.

PARTICIPATION & ATTENDANCE

Prompt and consistent attendance in your online courses is essential for your success at CSU-Global Campus. Failure to verify your attendance within the first 7 days of this course may result in your withdrawal. If for some reason you would like to drop a course, please contact your advisor.

Online classes have deadlines, assignments, and participation requirements just like on-campus classes. Budget your time carefully and keep an open line of communication with your instructor. If you are having technical problems, problems with your assignments, or other problems that are impeding your progress, let your instructor know as soon as possible.

COURSE MATERIALS

Required:

Peterson, S. J., & Dagostino, F. R. (2019). *Estimating in building construction* (9th ed.). New York, NY: Pearson. ISBN 9780134701165

Recommended:

Project Management Institute (PMI). (2016). *Construction extension to the PMBOK® Guide*. Newtown Square, PA: Project Management Institute.

Careers in construction management information: linked under Course Information

For this course, you need to install and use Bluebeam ® Revu ®. You will use this PDF markup and quantity takeoff tool. As a CSU student, you have access to an educational copy of this software application, free of charge. Your instructor will share a temporary license that you can use to install an educational copy of the program. Install the software and then use the following course on Lynda.com to learn how you can use Bluebeam to work with plans and specifications, mark up drawings, and prepare quantity takeoff (other courses are also available if you would like to learn more):

Rogers, J. (2018). *Learning Bluebeam* [Video file]. Retrieved from https://www.lynda.com/Architecture-tutorials/Learn-Bluebeam-Basics/435229-2.html?srchtrk=index%3a1%0alinktypeid%3a2%0aq%3abluebeam%0apage%3a1%0as%3arelevance%0asa%3atrue%0aproducttypeid%3a2

Chapters 1 and 2 of the above LinkedIn Learning course provide an overview of the important considerations in the installation and setup of Bluebeam ® Revu ®. Please also watch other chapters (especially Chapters 3 -6) to learn how to use the tool.

COURSE SCHEDULE

Due Dates

The Academic Week at CSU-Global begins on Monday and ends the following Sunday.

- **Discussion Boards:** The original post must be completed by Thursday at 11:59 p.m. MT and peer responses posted by Sunday at 11:59 p.m. MT. Late posts may not be awarded points.
- **Opening Exercises:** Take the Opening Exercise before reading each week's content to see which areas you will need to focus on. You may take these exercises as many times as you need. The Opening Exercises will not affect your final grade.
- **Mastery Exercises:** Students may access and retake Mastery Exercises through the last day of class until they achieve the scores they desire.
- **Critical Thinking:** Assignments are due Sunday at 11:59 p.m. MT.

WEEKLY READING AND ASSIGNMENT DETAILS

Module 1

Readings

- Chapters 1 & 2 in *Estimating in Building Construction*
- AECInfo.com. (2019). Products. Retrieved from https://www.aecinfo.com/1/category/category_product10_1.html
- AECInfo.com. (2019). Specs. Retrieved from https://www.aecinfo.com/specs/index.html
- 4Specs.com. (2019). 4Specs. Retrieved from http://www.4specs.com/
- U.S. Bureau of Labor Statistics. (2017). Cost estimators. Retrieved from https://www.bls.gov/ooh/Business-and-Financial/Cost-estimators.htm

Opening Exercise (0 points)

Discussion (25 points)

Critical Thinking (120 points)

Option #1: Reading Drawings & Specifications

Complete the following course on LinkedIn Learning:

Rogers, J. (2017). Construction Management: Reading Drawings & Specifications. [Video file]. Retrieved from https://www.linkedin.com/learning/construction-management-reading-drawings-specifications/welcome?u=2245842

Then prepare a two-page narrative (excluding the cover page, appendices, and reference page that you have to provide) to describe four of the main considerations that need to be given to performing quantity takeoff.

In addition, explain how you, as an estimator, would assess the quality of an estimate to ensure the above-noted four considerations are given to preparing an estimate. One you complete the course on LinkedIn Learning, LinkedIn provides a certificate of completion for the course, which you can download and keep for your records. Attach the certificate as an appendix to your work. Cite and incorporate content from the LinkedIn Learning course, the textbook, and an optional, additional peer-reviewed reference.

Option #2: Estimating the Cost of Concrete and Finishes

Find a minimum of three peer-reviewed resources that describe how construction plans and specifications can be read and reviewed. You can also rely on guidelines or resources prepared by governmental agencies or professional associations (see the linked example on the Assignments page). Then prepare a three-page narrative (the three pages exclude the cover page, appendices, and

reference page that you have to provide) to describe four of the main considerations that need to be given to performing quantity takeoff.

In addition, explain how you, as an estimator, would assess the quality of an estimate to ensure the above-noted four considerations are given to preparing an estimate. Cite and incorporate content from the textbook and the references noted above.

Mastery Exercise (10 points)

Module 2

Readings

- Chapters 3, 4, & 5 in *Estimating in Building Construction*
- Oluwole, A. O., Olaniyi, I. A., & Makanjuola, S. (2017). Bid or no-bid decision factors of indigenous contractors in Nigeria. *Engineering, Construction and Architectural Management, 24*(3), 378-392.
- Wang, K. C., Wang, W. C., Wang, H. H., Hsu, P. Y., Wu, W. H., & Kung, C. J. (2016). Applying building information modeling to integrate schedule and cost for establishing construction progress curves. *Automation in Construction, 72*, 397-410.

Opening Exercise (0 points)

Discussion (25 points)

Critical Thinking (120 points)

Option #1: Planning the Estimate, Site Investigation and Bid or No-bid Decisions

1. Describe the main considerations in (a) planning the estimate, (b) performing site investigations for cost estimating purposes, and (c) making bid or no-bid decisions. As an estimator, what input data you need to take these steps.

2. Then, assume that you have been assigned as a cost estimation supervisor to review the work outcome of your team. Your team has been planning an estimate, performed site investigations for estimating purposes, and make a bid or no-bid decision. How you would review and assess their work and what elements do you evaluates to ensure they have exercised due diligence in taking these steps.

Provide a minimum of a four-page narrative (the four pages exclude the cover page and reference page that you have to provide). Of the four pages, two pages should be dedicated to Numbered Item 1 in the above instruction and two pages should be dedicated to Numbered Item 2 in the above instruction. Properly organize your work and add headings and subheadings in your narrative matching the numbered items outlined above (Numbered Items 1a, 1b, 1c, and 2). Support your statements and conclusions using the textbook, and at least two scholarly, peer-reviewed articles published in the most recent ten years. Be sure to include your citation/reference pair in accordance with CSU-Global Guide to Writing and APA.

Option #2: Estimating Cost for Materials, Labor, and Equipment

1. Describe the main considerations in estimating the cost of (a) materials, (b) labor, and (c) equipment. As an estimator, what input data you need to prepare estimates in each of these categories.

2. Then, assume that you have been assigned as a cost estimation supervisor to review the work outcome of your team. Your team has prepared materials, labor and equipment estimates for a construction project. How you would review and assess their work and what elements do you evaluate to ensure they have exercised due diligence in preparing the estimates.

Provide a minimum of a four-page narrative (the four pages exclude the cover page and reference page that you have to provide). Of the four pages, two pages should be dedicated to Numbered Item 1 in the above instruction and two pages should be dedicated to Numbered Item 2 in the above instruction. Properly organize your work and add headings and subheadings in your narrative matching the numbered items outlined above (Numbered Items 1a, 1b, 1c, and 2). Support your statements and conclusions using the textbook, and at least two scholarly, peer-reviewed articles published in the most recent ten years. Be sure to include your citation/reference pair in accordance with CSU-Global Guide to Writing and APA.

Mastery Exercise (10 points)

Portfolio Milestone (40 points)

Option #1: Bluebeam

One of the computer programs that is very helpful in performing quantity takeoff is Bluebeam Revu. As a CSU student, you have access to an educational copy of this software application, free of charge. Your instructor will share a temporary license that you can use to install an educational copy of the program. Install the software then use the following course on LinkedIn Learning to learn how you can use Bluebeam to work with plans and specifications, markup drawings, and prepare quantity takeoff.

Rogers, J. (2018). Learning Bluebeam [Video file]. Retrieved from https://www.lynda.com/Architecture-tutorials/Learn-Bluebeam-Basics/435229-2.html?srchtrk=index%3a1%0alinktypeid%3a2%0aq%3abluebeam%0apage%3a1%0as%3arelevance%0asa%3atrue%0aproducttypeid%3a2

Once you have completed the LinkedIn Learning training, go to your profile page on Lynda.com and obtain your certificate of completion for this course. Then prepare a two-page narrative (excluding the cover page, appendices, and reference page that you have to provide) to summarize what you learned, and explain in what areas you rely on your own skills in preparing estimates and in what areas you rely on the capabilities of computer programs in preparing cost estimates. Attach the certificate as an appendix to your work.

Cite and incorporate content from the LinkedIn Learning course, the textbook, and an optional, additional peer-reviewed reference.

Option #2: Preparing Cost Estimates Using Computer Programs

Find a minimum of three peer-reviewed resources that describe how computer programs can be used in preparing estimates. Prepare a 3- to 4-page (excluding the cover page and reference page that you have to provide) narrative to identify three of the main functionalities of these programs and provide examples of computer programs that have such capabilities. You can also rely on guidelines or resources prepared by governmental agencies or professional associations.

In addition, explain in what areas you rely on your own skills in preparing estimates and in what areas you rely on the capabilities of computer programs in preparing cost estimates. Cite and incorporate content from the textbook and the references noted above.

Module 3

Readings

- Chapters 6, 7, 8, & 9 in *Estimating in Building Construction*
- Chapter 4 in Lock, D. (2013). *Project management* (10th ed.). Burlington, VT: Gower.

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Portfolio Milestone (70 points)

Options #1 and #2: Introductory and Intention-to-Bid Letters

Assume that your construction firm has decided to bid on the office building project (introduced in Module 2 Portfolio Reminder).

This week, you need to decide what Option you would like to work on (Option 1 or 2 - To find out more about these two options, please see Module 1: Portfolio Reminder. Please also note that Module 3: Portfolio Milestone is the same irrespective of the Option you choose to work on). You also need to prepare a) an introductory letter and b) an intention to bid document. To do so, please take the following steps:

1. Pick a company name and use it in the write-up headings.
2. Provide a two-page introductory letter for your company. The letter is meant to function as a prequalification statement written in narrative form that describes why you believe your firm is a qualified general contractor. On page 1 of the above-referenced introductory letter, you need to properly introduce your firm, provide adequate contact information, identify your company's areas of expertise, summarize its past experience in performing as a general contractor, and provide other relevant and necessary information to describe why the owner firm should hire your firm for its construction project. On page 2, provide a building description to describe the office building per the construction drawings provided in the Module 1 Portfolio Milestone, identify the main components of the building, and describe your scope of work (this scope should match the scope of work corresponding to the option–Option #1 or #2–you have chosen to work on).
3. Provide an intention-to-bid letter. Assume that your firm will issue this formal letter to the Owner to state that your firm intends to participate in the bid process and accepts the instructions and evaluation criteria specified in the Request for Proposal (RFP) and in the bid documents.

At a minimum, this letter should contain the following:

1. Name of the designee of the company who submits and receives the correspondence (For the purpose of this project, each student is a designee of the company for his/her own scope of work/section)
2. The scope/section that the designee intends to bid with identifying all inclusions and exclusions (this scope should match the scope of work corresponding to the option–Option 1 or 2–you have chosen to work on)
3. The unit prices for the identified scope of work (at this stage, we are not preparing quantity takeoffs, but as part of the intention to bid, the bidders are only asked to provide a list of unit prices that they expect to complete each unit of work).
4. The proposed timeframe for completing the scope of work

In the two letters described above, please address all your correspondence to the Owner, Terry M. Smith, President of Ogden Development, P.O. Box 1256, Ogden, Utah 84403.

Module 4

Readings

- Chapters 10 & 11 in *Estimating in Building Construction*
- Cho, D., Cho, H., & Kim, D. (2014). Automatic data processing system for integrated cost and schedule control of excavation works in NATM tunnels. *Journal of Civil Engineering and Management, 20*(1), 132-141.
- Devi, L. P., & Palaniappan, S. (2017). A study on energy use for excavation and transport of soil during building construction. *Journal of Cleaner Production, 164*, 543-556.

Opening Exercise (0 points)

Discussion (25 points)

Critical Thinking (130 points)

Option #1: Estimating Concrete Volume

Estimate the volume of concrete (in cubic yards) needed to place the continuous footings shown in the figures below. Assume a waste factor of 7%.

See the Assignments page for a link to the figures.

Option #2: Estimating Rebar Quantities

Estimate the amount of rebar required for the continuous footing shown in the figure above. Consider three inches of cover and extend the dowels 16 inches into the wall. To prepare your estimate, consider 15 percent for lap and waste to the continuous bars.

See the Assignments page for a link to the figures.

Mastery Exercise (10 points)

Module 5

Readings

- Chapters 12 & 13 in *Estimating Construction Costs*
- Brick Industry Association. (2019). Dimensioning and estimating brick masonry. Retrieved from http://www.gobrick.com/docs/default-source/read-research-documents/technicalnotes/10-dimensioning-and-estimating-brick-masonry.pdf?sfvrsn=0
- Lee, J.-S., Lee, H.-S., & Park, M.-S. (2011). Schematic cost estimating model for super tall buildings using a high-rise premium ratio. *Canadian Journal of Civil Engineering, 38*(5), 530-545.

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Portfolio Milestone (40 points)

Option #1: Proposal and Estimate—Concrete and Finishes; and Option #2: Proposal and Estimate—Wood Structures and Masonry

First, improve what you submitted in Week 3 based on any constructive feedback you received from the instructor, and include the improved version of your work as part of your submissions this week.

This week, you then need to prepare a calculation spreadsheet that satisfies the following requirements:

- Each Portfolio Option contains two components. Option #1 contains Concrete and Finishes, and Option #2 contains Wood Structures and Masonry.

- After identifying the relevant construction drawings that are associated with your scope of work, create a calculation spreadsheet to identify the various materials required to complete only one of the components of your scope of work (see the note above) and estimate their quantities. At this stage, no cost is estimated. For example, if you have chosen Option 1, your spreadsheet may include only Concrete, and if you have chosen Option 2, your spreadsheet may include only Masonry.
  Note: Since in Module 2, the Portfolio Milestone focused on using computer programs to prepare quantity takeoff, you are encouraged to use computer programs to estimate the physical material quantities.
- Provide a two-page narrative to briefly describe your scope of work (only the component you chosen above), the steps you took to prepare material quantity takeoff (the way you estimated the quantities of work), and basis for estimate (assumptions, inclusions, and exclusions of the cost estimate).

Paper Requirements:

- Incorporate at least two of the recommended readings for the course and two outside references (a peer-reviewed scholarly article published in the last five years, that you would find among library resources).
- Format your entire paper in accordance with the CSU-Global Guide to Writing & APA.

Module 6

Readings

- Chapters 14 & 15 in *Estimating in Building Construction*
- Kozlovská, M., Struková, Z., & Kaleja, P. (2015). Methodology of cost parameter estimation for modern methods of construction based on wood. *Procedia Engineering, 108*(C), 387-393.
- Western Wood Products Association. (2019). Why wood? Retrieved from http://wwpa.org/resources/choices
- Explore resources found at http://www.calredwood.org/literaturelibrary/ including Softwood lumber sizes explained to become familiar with some wooden products.

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Portfolio Milestone (40 points)

Option #1: Proposal and Estimate—Concrete and Finishes

Portfolio Project Option #1 contains two components: Concrete and Finishes.

First, improve what you submitted in Week 5 based on any constructive feedback you received from the instructor, and include the improved version of your work as part of your submissions this week. To do so, identify the deficiencies of your estimate or any errors that you made. Make sure you revise the calculation spreadsheet, if needed, to ensure you have a correct basis to proceed with preparing your cost estimate in the following weeks.

This week, continue to work on this single component and make your calculation spreadsheet more complete by a) assigning unit prices to the quantities of materials you estimated in Week 5, b) estimating labor and equipment costs for your scope of work.

In your spreadsheet, identify the following:

1. The type, size, and number of pieces of equipment needed
2. Composition of the crew, and crew sizes
3. Equipment and labor cycle times and production rates
4. The total time the equipment/labor will be on the job
5. Labor and equipment costs based on cycle times, production rates, and time on the job using the appropriate quantities of work.
6. A reasonable contingency by taking potential project negative risks into account

In addition, provide a maximum of a two-page narrative to describe your findings (estimated quantities and costs) and provide a basis-for-estimate document that outlines assumptions, inclusions, and exclusions of the cost estimate.

Option #2: Proposal and Estimate—Wood Structures and Masonry

Portfolio Project Option #2 contains two components: Wood Structures and Masonry.

First, improve what you submitted in Week 5 based on any constructive feedback you received from the instructor, and include the improved version of your work as part of your submissions this week. To do so, identify the deficiencies of your estimate or any errors that you made. Make sure you revise the calculation spreadsheet, if needed, to ensure you have a correct basis to proceed with preparing your cost estimate in the following weeks.

This week, continue to work on this single component and make your calculation spreadsheet more complete by a) assigning unit prices to the quantities of materials you estimated in Week 5, b) estimating labor and equipment costs for your scope of work.

In your spreadsheet, identify the following:

1. The type, size, and number of pieces of equipment needed
2. Composition of the crew, and crew sizes
3. Equipment and labor cycle times and production rates
4. The total time the equipment/labor will be on the job
5. Labor and equipment costs based on cycle times, production rates, and time on the job using the appropriate quantities of work.
6. A reasonable contingency by taking potential project negative risks into account

In addition, provide a maximum of a two-page narrative to describe your findings (estimated quantities and costs) and provide a basis-for-estimate document that outlines assumptions, inclusions, and exclusions of the cost estimate.

Module 7

Readings

- Chapters 16 & 17 in *Estimating in Building Construction*
- Lopez, D., & Froese, T. M. (2016). Analysis of costs and benefits of panelized and modular prefabricated homes. *Procedia Engineering*, *145*, 1291-1297.

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Portfolio Milestone (60 points)

Option #1: Proposal and Estimate—Concrete and Finishes

Portfolio Project Option #1 contains two components: Concrete and Finishes. In Weeks 5 and 6, you worked only on one of the two components. This week, you need to work on the second component. (If you worked on Concrete in Weeks 5 and 6, this week you need to work on Finishes.)

Make your calculation spreadsheet more complete by:

(a) adding the second component of the scope of work you have chosen to your calculation spreadsheet, and by estimating its quantities using Bluebeam,
(b) assigning unit prices to the quantities of materials, and
(c) estimating labor and equipment costs for your scope of work.

Complete your calculation spreadsheet for the second component of your work using the instruction provided in the previous Portfolio Milestones and provide a maximum of a two-page narrative to describe your findings (estimated quantities and costs). Provide a basis-for-estimate document that outlines assumptions, inclusions, and exclusions of the cost estimate.

Option #2: Proposal and Estimate—Wood Structures and Masonry

Portfolio Project Option #2 contains two components: wood structures and masonry. In Weeks 5 and 6, you worked only on one of the two components. This week, you need to work on the second component. (If you worked on Masonry in Weeks 5 and 6, this week you need to work on Wood Structures.)

Make your calculation spreadsheet more complete by:

(a) adding the second component of the scope of work you have chosen to your calculation spreadsheet, and by estimating its quantities using Bluebeam,
(b) assigning unit prices to the quantities of materials, and
(c) estimating labor and equipment costs for your scope of work.

Complete your calculation spreadsheet for the second component of your work using the instruction provided in the previous Portfolio Milestones and provide a maximum of a two-page narrative to describe your findings (estimated quantities and costs). Provide a basis-for-estimate document that outlines assumptions, inclusions, and exclusions of the cost estimate.

Module 8

Readings

- Chapters 18 & 19 in *Estimating in Building Construction*
- Wang, J., Wang, X., Shou, W., Chong, H. Y., & Guo, J. (2016). Building information modeling-based integration of MEP layout designs and constructability. *Automation in Construction*, *61*, 134-146.

Opening Exercise (0 points)

Discussion (25 points)

Mastery Exercise (10 points)

Portfolio Project (100 points)

Option #1: Proposal and Estimate—Concrete and Finishes

In an earlier option, you prepared some bidding documents, correspondence, and prepared estimates for concrete and finishes.

1.Improve what you submitted in all your previous Portfolio Milestone submissions (Weeks 6 and 7, in particular) based on any constructive feedback you received from the instructor, and include the improved version of your work as part of your submissions this week.

2. Use Bluebeam, Adobe Acrobat, or a free application (e.g., PDFill) to merge your previous Portfolio Milestone submissions (prepared in the Module 3, 5, 6, and 7 Portfolio Milestones) into one single PDF document after incorporating the constructive feedback that the instructor provided on each of the Portfolio Milestones throughout the term.

3. Provide a maximum of a three-page narrative to describe the following two items:

- Your findings (estimated quantities and costs).
- Basis-for-estimate that outlines assumptions, inclusions, and exclusions of the cost estimate.

4. Prepare a presentation file containing 10-12 slides or a three-page narrative to brief your upper-management team on the project and give your go/no go recommendation for bidding the project. To do so, provide the following:

- Briefly describe the project and your scope of work
- Identify potential risks and estimate contingencies needed to manage risks
- Identify means and methods of construction
- Summarize material quantities and material, labor, and equipment costs
- Identify the percentage of profit
- The total estimated cost for completing your scope of work

Your paper should conform to CSU-Global Guide to Writing & APA. Include at least two scholarly references in addition to the course textbook. The CSU-Global Library is a good place to find these references.

Option #2: Proposal and Estimate—Wood Structures and Masonry

In an earlier option, you prepared some bidding documents, correspondence, and prepared estimates for wood and masonry.

1 .Improve what you submitted in all your previous Portfolio Milestone submissions (Weeks 6 and 7, in particular) based on any constructive feedback you received from the instructor, and include the improved version of your work as part of your submissions this week.

2. Use Bluebeam, Adobe Acrobat, or a free application, such as PDFill. to merge your previous Portfolio Milestone submissions (prepared in Module 3, 5, 6, and 7 Portfolio Milestones) into one single PDF document after incorporating the constructive feedback that the instructor provided on each of the Portfolio Milestones throughout the term.

3. Provide a maximum of a three-page narrative to describe the following two items:

- Your findings (estimated quantities and costs)
- Basis-for-estimate that outlines assumptions, inclusions, and exclusions of the cost estimate.

4. You need to prepare a presentation file containing 10-12 slides or a three-page narrative to brief your upper-management team on the project and give your go/no go recommendation for bidding the project. To do so, provide the following:

- Briefly describe the project and your scope of work
- Identify potential risks and estimate contingencies needed to manage risks
- Identify means and methods of construction
- Summarize material quantities and material, labor, and equipment costs
- Identify the percentage of profit
- The total estimated cost for completing your scope of work

Your paper should conform to CSU-Global Guide to Writing & APA. Include at least two scholarly references in addition to the course textbook. The CSU-Global Library is a good place to find these references.

COURSE POLICIES

Grading Scale	
A	95.0 – 100
A-	90.0 – 94.9
B+	86.7 – 89.9
B	83.3 – 86.6
B-	80.0 – 83.2
C+	75.0 – 79.9
C	70.0 – 74.9
D	60.0 – 69.9
F	59.9 or below

Course Grading

20% Discussion Participation
0% Opening Exercises
8% Mastery Exercises
37% Critical Thinking Assignments
35% Final Portfolio Project

IN-CLASSROOM POLICIES

For information on late work and incomplete grade policies, please refer to our **In-Classroom Student Policies and Guidelines** or the Academic Catalog for comprehensive documentation of CSU-Global institutional policies.

Academic Integrity
Students must assume responsibility for maintaining honesty in all work submitted for credit and in any other work designated by the instructor of the course. Academic dishonesty includes cheating, fabrication, facilitating academic dishonesty, plagiarism, reusing /repurposing your own work (see CSU-Global Guide to Writing & APA for percentage of repurposed work that can be used in an assignment), unauthorized possession of academic materials, and unauthorized collaboration. The CSU-Global Library provides information on how students can avoid plagiarism by understanding what it is and how to use the Library and internet resources.

Citing Sources with APA Style
All students are expected to follow the CSU-Global Guide to Writing & APA when citing in APA (based on the most recent APA style manual) for all assignments. A link to this guide should also be provided within most assignment descriptions in your course.

Disability Services Statement
CSU-Global is committed to providing reasonable accommodations for all persons with disabilities. Any student with a documented disability requesting academic accommodations should contact the Disability Resource Coordinator at 720-279-0650 and/or email ada@CSUGlobal.edu for additional information to coordinate reasonable accommodations for students with documented disabilities.

Netiquette
Respect the diversity of opinions among the instructor and classmates and engage with them in a courteous, respectful, and professional manner. All posts and classroom communication must be conducted in accordance with the student code of conduct. Think before you push the Send button. Did you say just what you meant? How will the person on the other end read the words?

Maintain an environment free of harassment, stalking, threats, abuse, insults, or humiliation toward the instructor and classmates. This includes, but is not limited to, demeaning written or oral comments of an ethnic, religious, age, disability, sexist (or sexual orientation), or racist nature; and the unwanted sexual advances or intimidations by email, or on discussion boards and other postings within or connected to the online classroom. If you have concerns about something that has been said, please let your instructor know.