

# Summit CIVL 440: Construction Project Management

Summit fully illustrated textbook edition

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Original Summit-authored instructional text generated from the live course runtime,  
bibliography layer, and assessment structure.

March 22, 2026

@@TOKEN\_0@@ Summit first edition draft @@TOKEN\_1@@ college @@TOKEN\_2@@ 3 @@TO-  
KEN\_3@@ 14 weeks @@TOKEN\_4@@ 9.6 hours/week

# Originality note

This textbook is a Summit-authored instructional text. It is informed by the course bibliography in @@TOKEN\_0@@ and by open academic references used elsewhere in Summit, but it does not copy or restate any single commercial textbook.

# How this textbook was built

This book was generated from the live Summit course runtime for Construction Project Management: the syllabus, lesson sequence, reading chapters, guided practice, homework sets, quizzes, mastery exam, and workload standard. The design goal is to give a student a usable, course-complete book while preserving original Summit wording and sequencing.

A Summit-authored project-management course on scheduling, cost control, risk, contracts, and construction project delivery.

Systems chapters should keep interactions, constraints, and decision consequences visible instead of treating each variable in isolation.

This volume is structured as a teaching book rather than a bare note pack. Every chapter contains explanation, worked examples, guided practice, chapter homework, and a rear answer key so the student can study independently and still get disciplined feedback.

# Course use guide

- Read one chapter at a time in sequence; each chapter is aligned to a live lesson block in the course workspace.
- Rebuild the worked examples before attempting the graded homework or quiz material.
- Keep a scratch notebook beside the text and write down assumptions, diagrams, and the points where you usually get stuck.
- Use the course tutor, guided practice, and homework only after you can explain the chapter in your own words.

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# Course map

- 4 live lesson chapters
- 4 graded homework checkpoints
- 4 timed quizzes
- 1 cumulative mastery exam
- 5 declared course outcomes

# Prerequisite and readiness position

Course prerequisites: construction-methods.

This course assumes the student can already use the prerequisite tools without re-learning them during the semester. Summit treats those prior requirements as active working knowledge, not as paperwork only.

# Semester workload standard

Summit models this course as @@TOKEN\_0@@ across a 14-week term plus final assessment window. The expected distribution is:

- Contact-equivalent instruction: 42 hours
- Reading: 20 hours
- Practice and problem solving: 18 hours
- Homework: 16 hours
- Lab, design, and reporting: 24 hours
- Exam preparation: 15 hours

Expected volume:

- 70-100 scheduling, cost-control, cash-flow, risk, and resource-allocation exercises.
- 8-10 graded schedules, cost-control packages, or project-management memos.
- 24 hours reserved for project controls, stakeholder updates, procurement documents, and management reporting.

# Reference basis

Primary synthesis anchors from the bibliography for this course (50 listed references total):

1. Principles of Geotechnical Engineering
2. Soil Mechanics and Foundations
3. Traffic and Highway Engineering
4. Construction Planning, Equipment, and Methods
5. Infrastructure Asset Management
6. Principles of Geotechnical Engineering
7. Fundamentals of Geotechnical Engineering
8. TEXTBOOK OF GEOTECHNICAL ENGINEERING, Fourth Edition

# Chapter 1

## Chapter 1 Project planning and schedule control

### Chapter purpose

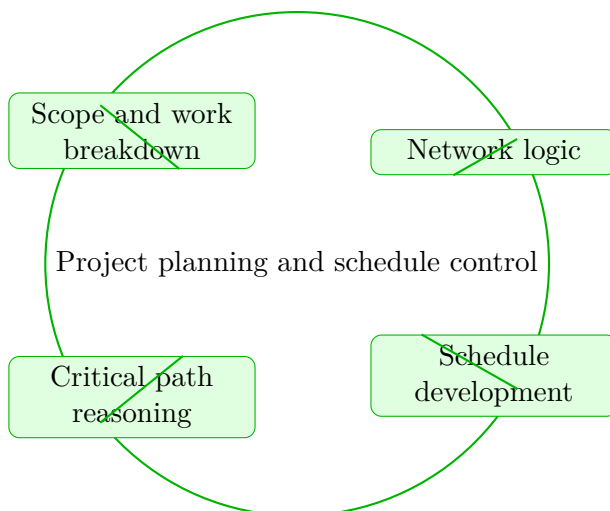
Students build project planning, activity logic, and schedule-control foundations.

This chapter sits at the opening of Construction Project Management. It develops Scope and work breakdown, Network logic, Schedule development, and Critical path reasoning so that the student can move from explanation to execution without losing the thread of the course.

The student should read this chapter with a network mindset. Whether the subject is management, operations, infrastructure, or policy, the point is to see how local choices reshape the whole system. The book therefore emphasizes interdependence, feedback, and tradeoff reasoning.

### Core ideas

- Scope and work breakdown
- Network logic
- Schedule development
- Critical path reasoning



## How to think through this chapter

Method in this family usually starts by naming the system boundary, the objective function or decision goal, the important constraints, and the major stakeholders. From there the student should structure the analysis so that recommendations remain traceable to evidence.

When working this chapter, keep the following question active: @@TOKEN\_0@@ A good student answer should connect setup, assumptions, and conclusion instead of only chasing a final number or sentence.

CIVL 440 Construction Project Management. Project planning and schedule control. This chapter explains why the topic matters, how strong students organize the work, and what separates a defensible submission from a shallow one in this unit.

## Why Project planning and schedule control is a design decision, not a lookup exercise

Project planning and schedule control is really a decision-making chapter. The mathematics, code checks, and concept comparisons matter because they push the student toward one defensible recommendation and away from weaker ones.

In Construction Project Management, this is where students learn not to confuse a formula with a decision. The formula only matters because it changes how scope and work breakdown should be judged.

## How scope and work breakdown and network logic drive the option screen

A strong student starts by naming the constraints, criteria, and failure points. Only then does scope and work breakdown become useful, because now it sits inside a real decision frame rather than floating as isolated content.

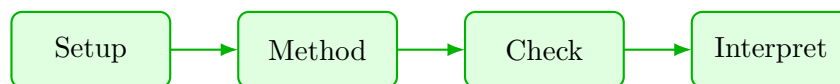
Network logic usually supplies the second check that keeps the recommendation honest. Good design work is rarely driven by one number alone.

## How review-ready design work differs from draft thinking

Review-ready design work shows the option screen, the governing check, and the reason one direction survives while another does not. Weak work jumps too quickly from calculation to recommendation without showing the selection logic.

The easiest way to improve these chapters is to write the design rationale as if another engineer must sign it tomorrow.

## Worked example



@@TOKEN\_0@@ Walk through a construction project management design check built around scope and work breakdown and network logic.

1. Define the performance goal, constraints, and the standard the design must satisfy.
2. Compare the relevant options or checks with scope and work breakdown as the controlling criterion.
3. Record the governing assumptions, demand-capacity logic, or decision screen in a reviewable order.
4. State the selected direction and explain why it is the strongest engineering choice.

Read this example twice: once for the flow of ideas and once for the technical structure of the solution.

## Worked-through guided example

@@TOKEN\_0@@ Work a construction project management decision problem where scope and work breakdown changes the preferred option or the governing design check.

1. List the criteria, constraints, and what counts as an acceptable design path.
2. Use scope and work breakdown to compare the available options or checks in a reviewable order.
3. Close with the option you would defend and the reason it survives review.

A complete design response frames the criteria, shows how scope and work breakdown drives the decision, and documents the recommendation in a review-ready sequence.

## Instructor commentary

Students should annotate this chapter for structure, not just facts. Mark where the argument changes direction, where the method requires a hidden assumption, and where the conclusion becomes more general than the worked example. If the chapter feels easy while you are reading it but difficult when you close the page, you have not yet converted recognition into mastery.

Study should alternate between framework notes, applied cases, and short decision memos so that analysis and communication stay connected.

## Practice while you read

#### Practice Set 1: Project planning and schedule control

Students build project planning, activity logic, and schedule-control foundations.

@@TOKEN\_0@@ Work a construction project management decision problem where scope and work breakdown changes the preferred option or the governing design check.

- Hint: List the constraints and criteria first. Then show how scope and work breakdown changes the option screen or final recommendation.
- Step 1: List the criteria, constraints, and what counts as an acceptable design path.
- Step 2: Use scope and work breakdown to compare the available options or checks in a reviewable order.
- Step 3: Close with the option you would defend and the reason it survives review.
- Checkpoint: A strong checkpoint answer shows the governing criteria, explains how scope and work breakdown changes the option screen, and lands on a defensible recommendation.

@@TOKEN\_0@@ Work a construction project management decision problem where network logic changes the preferred option or the governing design check.

- Hint: List the constraints and criteria first. Then show how network logic changes the option screen or final recommendation.

- Step 1: List the criteria, constraints, and what counts as an acceptable design path.
- Step 2: Use network logic to compare the available options or checks in a reviewable order.
- Step 3: Close with the option you would defend and the reason it survives review.
- Checkpoint: A strong checkpoint answer shows the governing criteria, explains how network logic changes the option screen, and lands on a defensible recommendation.

## Chapter homework

@@TOKEN\_0@@ Students build project planning, activity logic, and schedule-control foundations.

1. Prepare a construction project management design check or option screen focused on scope and work breakdown. Show the governing criteria, tradeoffs, and the recommendation you would defend.
2. Prepare a construction project management design check or option screen focused on network logic. Show the governing criteria, tradeoffs, and the recommendation you would defend.
3. Prepare a construction project management design check or option screen focused on schedule development. Show the governing criteria, tradeoffs, and the recommendation you would defend.
4. Prepare a construction project management design check or option screen focused on critical path reasoning. Show the governing criteria, tradeoffs, and the recommendation you would defend.

Answers for these homework problems appear in the back-of-book answer key.

## Chapter summary and study notes

- Define the governing criteria behind scope and work breakdown before comparing options.
- Show how network logic drives the recommendation.
- Document the decision path clearly enough for a review or design defense.

## Study tips

- Write the criteria and constraints before comparing any option.
- Keep scope and work breakdown visible as a decision driver, not just a calculation step.
- Show why the recommended option survives review instead of only naming it.

## **Common traps**

- Treating a design formula like the recommendation itself.
- Skipping the explicit criteria or constraints that govern the decision.
- Presenting the final choice without showing the option screen or review logic.

## **Family-level errors to watch for**

- Optimizing one piece of the system without checking spillover effects.
- Confusing a metric with the real decision objective.
- Making recommendations without showing the logic or tradeoffs behind them.

## Chapter 2

# Chapter 2 Cost, resources, and project controls

### Chapter purpose

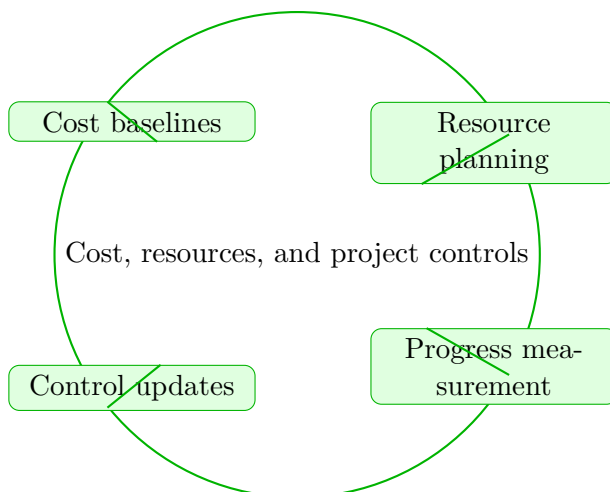
The course turns to budgets, resources, progress tracking, and control systems.

This chapter sits in the middle of Construction Project Management. It develops Cost baselines, Resource planning, Progress measurement, and Control updates so that the student can move from explanation to execution without losing the thread of the course.

The student should read this chapter with a network mindset. Whether the subject is management, operations, infrastructure, or policy, the point is to see how local choices reshape the whole system. The book therefore emphasizes interdependence, feedback, and tradeoff reasoning.

### Core ideas

- Cost baselines
- Resource planning
- Progress measurement
- Control updates



## How to think through this chapter

Method in this family usually starts by naming the system boundary, the objective function or decision goal, the important constraints, and the major stakeholders. From there the student should structure the analysis so that recommendations remain traceable to evidence.

When working this chapter, keep the following question active: @@TOKEN\_0@@ A good student answer should connect setup, assumptions, and conclusion instead of only chasing a final number or sentence.

CIVL 440 Construction Project Management. Cost, resources, and project controls. This chapter explains why the topic matters, how strong students organize the work, and what separates a defensible submission from a shallow one in this unit.

## Why Cost, resources, and project controls is a design decision, not a lookup exercise

Cost, resources, and project controls is really a decision-making chapter. The mathematics, code checks, and concept comparisons matter because they push the student toward one defensible recommendation and away from weaker ones.

In Construction Project Management, this is where students learn not to confuse a formula with a decision. The formula only matters because it changes how cost baselines should be judged.

## How cost baselines and resource planning drive the option screen

A strong student starts by naming the constraints, criteria, and failure points. Only then does cost baselines become useful, because now it sits inside a real decision frame rather than floating as isolated content.

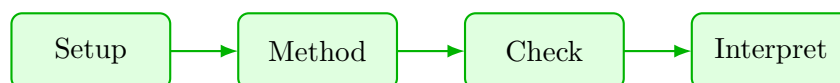
Resource planning usually supplies the second check that keeps the recommendation honest. Good design work is rarely driven by one number alone.

## How review-ready design work differs from draft thinking

Review-ready design work shows the option screen, the governing check, and the reason one direction survives while another does not. Weak work jumps too quickly from calculation to recommendation without showing the selection logic.

The easiest way to improve these chapters is to write the design rationale as if another engineer must sign it tomorrow.

### Worked example



@@TOKEN\_0@@ Walk through a construction project management design check built around cost baselines and resource planning.

1. Define the performance goal, constraints, and the standard the design must satisfy.
2. Compare the relevant options or checks with cost baselines as the controlling criterion.
3. Record the governing assumptions, demand-capacity logic, or decision screen in a reviewable order.
4. State the selected direction and explain why it is the strongest engineering choice.

Read this example twice: once for the flow of ideas and once for the technical structure of the solution.

### Worked-through guided example

@@TOKEN\_0@@ Work a construction project management decision problem where cost baselines changes the preferred option or the governing design check.

1. List the criteria, constraints, and what counts as an acceptable design path.
2. Use cost baselines to compare the available options or checks in a reviewable order.
3. Close with the option you would defend and the reason it survives review.

A complete design response frames the criteria, shows how cost baselines drives the decision, and documents the recommendation in a review-ready sequence.

## Instructor commentary

Students should annotate this chapter for structure, not just facts. Mark where the argument changes direction, where the method requires a hidden assumption, and where the conclusion becomes more general than the worked example. If the chapter feels easy while you are reading it but difficult when you close the page, you have not yet converted recognition into mastery.

Study should alternate between framework notes, applied cases, and short decision memos so that analysis and communication stay connected.

## Practice while you read

#### Practice Set 2: Cost, resources, and project controls

The course turns to budgets, resources, progress tracking, and control systems.

@@TOKEN\_0@@ Work a construction project management decision problem where cost baselines changes the preferred option or the governing design check.

- Hint: List the constraints and criteria first. Then show how cost baselines changes the option screen or final recommendation.
- Step 1: List the criteria, constraints, and what counts as an acceptable design path.
- Step 2: Use cost baselines to compare the available options or checks in a reviewable order.
- Step 3: Close with the option you would defend and the reason it survives review.
- Checkpoint: A strong checkpoint answer shows the governing criteria, explains how cost baselines changes the option screen, and lands on a defensible recommendation.

@@TOKEN\_0@@ Work a construction project management decision problem where resource planning changes the preferred option or the governing design check.

- Hint: List the constraints and criteria first. Then show how resource planning changes the option screen or final recommendation.
- Step 1: List the criteria, constraints, and what counts as an acceptable design path.
- Step 2: Use resource planning to compare the available options or checks in a reviewable order.
- Step 3: Close with the option you would defend and the reason it survives review.
- Checkpoint: A strong checkpoint answer shows the governing criteria, explains how resource planning changes the option screen, and lands on a defensible recommendation.

## Chapter homework

@@TOKEN\_0@@ The course turns to budgets, resources, progress tracking, and control systems.

1. Prepare a construction project management design check or option screen focused on cost baselines. Show the governing criteria, tradeoffs, and the recommendation you would defend.
2. Prepare a construction project management design check or option screen focused on resource planning. Show the governing criteria, tradeoffs, and the recommendation you would defend.
3. Prepare a construction project management design check or option screen focused on progress measurement. Show the governing criteria, tradeoffs, and the recommendation you would defend.
4. Prepare a construction project management design check or option screen focused on control updates. Show the governing criteria, tradeoffs, and the recommendation you would defend.

Answers for these homework problems appear in the back-of-book answer key.

## Chapter summary and study notes

- Define the governing criteria behind cost baselines before comparing options.
- Show how resource planning drives the recommendation.
- Document the decision path clearly enough for a review or design defense.

## Study tips

- Write the criteria and constraints before comparing any option.
- Keep cost baselines visible as a decision driver, not just a calculation step.
- Show why the recommended option survives review instead of only naming it.

## Common traps

- Treating a design formula like the recommendation itself.
- Skipping the explicit criteria or constraints that govern the decision.
- Presenting the final choice without showing the option screen or review logic.

## Family-level errors to watch for

- Optimizing one piece of the system without checking spillover effects.
- Confusing a metric with the real decision objective.
- Making recommendations without showing the logic or tradeoffs behind them.

## Chapter 3

# Chapter 3 Contracts, risk, and delivery systems

### Chapter purpose

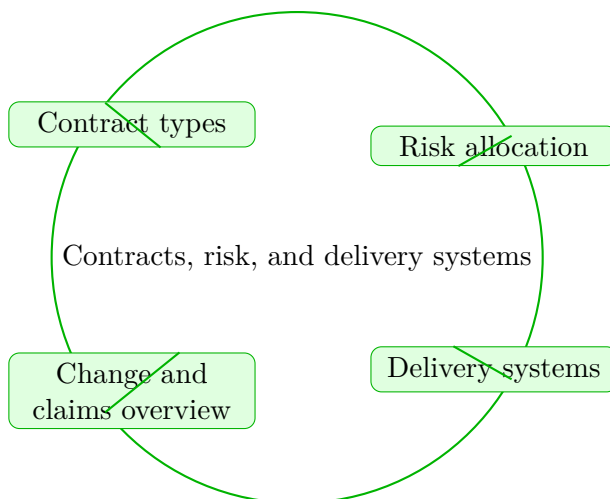
Students analyze project risk, contracting choices, and delivery-system implications.

This chapter sits in the middle of Construction Project Management. It develops Contract types, Risk allocation, Delivery systems, and Change and claims overview so that the student can move from explanation to execution without losing the thread of the course.

The student should read this chapter with a network mindset. Whether the subject is management, operations, infrastructure, or policy, the point is to see how local choices reshape the whole system. The book therefore emphasizes interdependence, feedback, and tradeoff reasoning.

### Core ideas

- Contract types
- Risk allocation
- Delivery systems
- Change and claims overview



## How to think through this chapter

Method in this family usually starts by naming the system boundary, the objective function or decision goal, the important constraints, and the major stakeholders. From there the student should structure the analysis so that recommendations remain traceable to evidence.

When working this chapter, keep the following question active: @@TOKEN\_0@@ A good student answer should connect setup, assumptions, and conclusion instead of only chasing a final number or sentence.

CIVL 440 Construction Project Management. Contracts, risk, and delivery systems. This chapter explains why the topic matters, how strong students organize the work, and what separates a defensible submission from a shallow one in this unit.

## Why Contracts, risk, and delivery systems is a design decision, not a lookup exercise

Contracts, risk, and delivery systems is really a decision-making chapter. The mathematics, code checks, and concept comparisons matter because they push the student toward one defensible recommendation and away from weaker ones.

In Construction Project Management, this is where students learn not to confuse a formula with a decision. The formula only matters because it changes how contract types should be judged.

## How contract types and risk allocation drive the option screen

A strong student starts by naming the constraints, criteria, and failure points. Only then does contract types become useful, because now it sits inside a real decision frame rather than floating as isolated content.

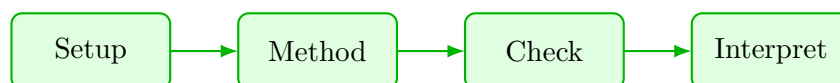
Risk allocation usually supplies the second check that keeps the recommendation honest. Good design work is rarely driven by one number alone.

## How review-ready design work differs from draft thinking

Review-ready design work shows the option screen, the governing check, and the reason one direction survives while another does not. Weak work jumps too quickly from calculation to recommendation without showing the selection logic.

The easiest way to improve these chapters is to write the design rationale as if another engineer must sign it tomorrow.

### Worked example



@@TOKEN\_0@@ Walk through a construction project management design check built around contract types and risk allocation.

1. Define the performance goal, constraints, and the standard the design must satisfy.
2. Compare the relevant options or checks with contract types as the controlling criterion.
3. Record the governing assumptions, demand-capacity logic, or decision screen in a reviewable order.
4. State the selected direction and explain why it is the strongest engineering choice.

Read this example twice: once for the flow of ideas and once for the technical structure of the solution.

### Worked-through guided example

@@TOKEN\_0@@ Work a construction project management decision problem where contract types changes the preferred option or the governing design check.

1. List the criteria, constraints, and what counts as an acceptable design path.
2. Use contract types to compare the available options or checks in a reviewable order.
3. Close with the option you would defend and the reason it survives review.

A complete design response frames the criteria, shows how contract types drives the decision, and documents the recommendation in a review-ready sequence.

## Instructor commentary

Students should annotate this chapter for structure, not just facts. Mark where the argument changes direction, where the method requires a hidden assumption, and where the conclusion becomes more general than the worked example. If the chapter feels easy while you are reading it but difficult when you close the page, you have not yet converted recognition into mastery.

Study should alternate between framework notes, applied cases, and short decision memos so that analysis and communication stay connected.

## Practice while you read

#### Practice Set 3: Contracts, risk, and delivery systems

Students analyze project risk, contracting choices, and delivery-system implications.

@@TOKEN\_0@@ Work a construction project management decision problem where contract types changes the preferred option or the governing design check.

- Hint: List the constraints and criteria first. Then show how contract types changes the option screen or final recommendation.
- Step 1: List the criteria, constraints, and what counts as an acceptable design path.
- Step 2: Use contract types to compare the available options or checks in a reviewable order.
- Step 3: Close with the option you would defend and the reason it survives review.
- Checkpoint: A strong checkpoint answer shows the governing criteria, explains how contract types changes the option screen, and lands on a defensible recommendation.

@@TOKEN\_0@@ Work a construction project management decision problem where risk allocation changes the preferred option or the governing design check.

- Hint: List the constraints and criteria first. Then show how risk allocation changes the option screen or final recommendation.
- Step 1: List the criteria, constraints, and what counts as an acceptable design path.
- Step 2: Use risk allocation to compare the available options or checks in a reviewable order.
- Step 3: Close with the option you would defend and the reason it survives review.
- Checkpoint: A strong checkpoint answer shows the governing criteria, explains how risk allocation changes the option screen, and lands on a defensible recommendation.

## Chapter homework

@@TOKEN\_0@@ Students analyze project risk, contracting choices, and delivery-system implications.

1. Prepare a construction project management design check or option screen focused on contract types. Show the governing criteria, tradeoffs, and the recommendation you would defend.
2. Prepare a construction project management design check or option screen focused on risk allocation. Show the governing criteria, tradeoffs, and the recommendation you would defend.
3. Prepare a construction project management design check or option screen focused on delivery systems. Show the governing criteria, tradeoffs, and the recommendation you would defend.
4. Prepare a construction project management design check or option screen focused on change and claims overview. Show the governing criteria, tradeoffs, and the recommendation you would defend.

Answers for these homework problems appear in the back-of-book answer key.

## Chapter summary and study notes

- Define the governing criteria behind contract types before comparing options.
- Show how risk allocation drives the recommendation.
- Document the decision path clearly enough for a review or design defense.

## Study tips

- Write the criteria and constraints before comparing any option.
- Keep contract types visible as a decision driver, not just a calculation step.
- Show why the recommended option survives review instead of only naming it.

## Common traps

- Treating a design formula like the recommendation itself.
- Skipping the explicit criteria or constraints that govern the decision.
- Presenting the final choice without showing the option screen or review logic.

## Family-level errors to watch for

- Optimizing one piece of the system without checking spillover effects.
- Confusing a metric with the real decision objective.
- Making recommendations without showing the logic or tradeoffs behind them.

## Chapter 4

# Chapter 4 Integrated project management package

### Chapter purpose

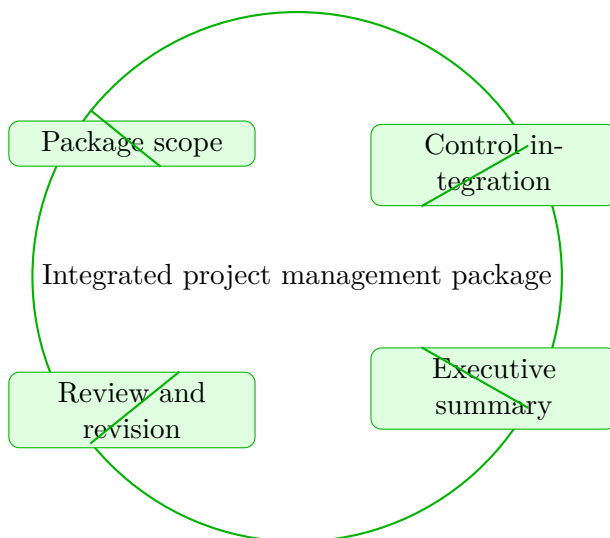
The semester closes with a coordinated schedule, cost, and risk package for a construction scenario.

This chapter sits at the end of Construction Project Management. It develops Package scope, Control integration, Executive summary, and Review and revision so that the student can move from explanation to execution without losing the thread of the course.

The student should read this chapter with a network mindset. Whether the subject is management, operations, infrastructure, or policy, the point is to see how local choices reshape the whole system. The book therefore emphasizes interdependence, feedback, and tradeoff reasoning.

### Core ideas

- Package scope
- Control integration
- Executive summary
- Review and revision



## How to think through this chapter

Method in this family usually starts by naming the system boundary, the objective function or decision goal, the important constraints, and the major stakeholders. From there the student should structure the analysis so that recommendations remain traceable to evidence.

When working this chapter, keep the following question active: @@TOKEN\_0@@ A good student answer should connect setup, assumptions, and conclusion instead of only chasing a final number or sentence.

CIVL 440 Construction Project Management. Integrated project management package. This chapter explains why the topic matters, how strong students organize the work, and what separates a defensible submission from a shallow one in this unit.

## Why Integrated project management package is a design decision, not a lookup exercise

Integrated project management package is really a decision-making chapter. The mathematics, code checks, and concept comparisons matter because they push the student toward one defensible recommendation and away from weaker ones.

In Construction Project Management, this is where students learn not to confuse a formula with a decision. The formula only matters because it changes how package scope should be judged.

## How package scope and control integration drive the option screen

A strong student starts by naming the constraints, criteria, and failure points. Only then does package scope become useful, because now it sits inside a real decision frame rather than floating

as isolated content.

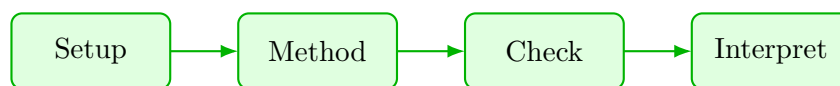
Control integration usually supplies the second check that keeps the recommendation honest. Good design work is rarely driven by one number alone.

## How review-ready design work differs from draft thinking

Review-ready design work shows the option screen, the governing check, and the reason one direction survives while another does not. Weak work jumps too quickly from calculation to recommendation without showing the selection logic.

The easiest way to improve these chapters is to write the design rationale as if another engineer must sign it tomorrow.

### Worked example



@@TOKEN\_0@@ Walk through a construction project management design check built around package scope and control integration.

1. Define the performance goal, constraints, and the standard the design must satisfy.
2. Compare the relevant options or checks with package scope as the controlling criterion.
3. Record the governing assumptions, demand-capacity logic, or decision screen in a reviewable order.
4. State the selected direction and explain why it is the strongest engineering choice.

Read this example twice: once for the flow of ideas and once for the technical structure of the solution.

### Worked-through guided example

@@TOKEN\_0@@ Work a construction project management decision problem where package scope changes the preferred option or the governing design check.

1. List the criteria, constraints, and what counts as an acceptable design path.
2. Use package scope to compare the available options or checks in a reviewable order.
3. Close with the option you would defend and the reason it survives review.

A complete design response frames the criteria, shows how package scope drives the decision, and documents the recommendation in a review-ready sequence.

## Instructor commentary

Students should annotate this chapter for structure, not just facts. Mark where the argument changes direction, where the method requires a hidden assumption, and where the conclusion becomes more general than the worked example. If the chapter feels easy while you are reading it but difficult when you close the page, you have not yet converted recognition into mastery.

Study should alternate between framework notes, applied cases, and short decision memos so that analysis and communication stay connected.

## Practice while you read

#### Practice Set 4: Integrated project management package

The semester closes with a coordinated schedule, cost, and risk package for a construction scenario.

@@TOKEN\_0@@ Work a construction project management decision problem where package scope changes the preferred option or the governing design check.

- Hint: List the constraints and criteria first. Then show how package scope changes the option screen or final recommendation.
- Step 1: List the criteria, constraints, and what counts as an acceptable design path.
- Step 2: Use package scope to compare the available options or checks in a reviewable order.
- Step 3: Close with the option you would defend and the reason it survives review.
- Checkpoint: A strong checkpoint answer shows the governing criteria, explains how package scope changes the option screen, and lands on a defensible recommendation.

@@TOKEN\_0@@ Work a construction project management decision problem where control integration changes the preferred option or the governing design check.

- Hint: List the constraints and criteria first. Then show how control integration changes the option screen or final recommendation.
- Step 1: List the criteria, constraints, and what counts as an acceptable design path.
- Step 2: Use control integration to compare the available options or checks in a reviewable order.
- Step 3: Close with the option you would defend and the reason it survives review.
- Checkpoint: A strong checkpoint answer shows the governing criteria, explains how control integration changes the option screen, and lands on a defensible recommendation.

## Chapter homework

@@TOKEN\_0@@ The semester closes with a coordinated schedule, cost, and risk package for a construction scenario.

1. Prepare a construction project management design check or option screen focused on package scope. Show the governing criteria, tradeoffs, and the recommendation you would defend.
2. Prepare a construction project management design check or option screen focused on control integration. Show the governing criteria, tradeoffs, and the recommendation you would defend.
3. Prepare a construction project management design check or option screen focused on executive summary. Show the governing criteria, tradeoffs, and the recommendation you would defend.
4. Prepare a construction project management design check or option screen focused on review and revision. Show the governing criteria, tradeoffs, and the recommendation you would defend.

Answers for these homework problems appear in the back-of-book answer key.

## Chapter summary and study notes

- Define the governing criteria behind package scope before comparing options.
- Show how control integration drives the recommendation.
- Document the decision path clearly enough for a review or design defense.

## Study tips

- Write the criteria and constraints before comparing any option.
- Keep package scope visible as a decision driver, not just a calculation step.
- Show why the recommended option survives review instead of only naming it.

## Common traps

- Treating a design formula like the recommendation itself.
- Skipping the explicit criteria or constraints that govern the decision.
- Presenting the final choice without showing the option screen or review logic.

**Family-level errors to watch for**

- Optimizing one piece of the system without checking spillover effects.
- Confusing a metric with the real decision objective.
- Making recommendations without showing the logic or tradeoffs behind them.

# Chapter 5

## Quiz review and official exam preparation

### Homework structure

- Homework Set 1: Project planning and schedule control: 4 graded problems attached to chapter 1.
- Homework Set 2: Cost, resources, and project controls: 4 graded problems attached to chapter 2.
- Homework Set 3: Contracts, risk, and delivery systems: 4 graded problems attached to chapter 3.
- Homework Set 4: Integrated project management package: 4 graded problems attached to chapter 4.

### Quiz structure

- Quiz 1: Project planning and schedule control: 4 questions, timed, and single-attempt in the live course. Quiz 1 should be taken only after you can solve the chapter homework without outside prompts.
- Quiz 2: Cost, resources, and project controls: 4 questions, timed, and single-attempt in the live course. Quiz 2 should be taken only after you can solve the chapter homework without outside prompts.
- Quiz 3: Contracts, risk, and delivery systems: 4 questions, timed, and single-attempt in the live course. Quiz 3 should be taken only after you can solve the chapter homework without outside prompts.
- Quiz 4: Integrated project management package: 4 questions, timed, and single-attempt in the live course. Quiz 4 should be taken only after you can solve the chapter homework without outside prompts.

## Official mastery exam

- Construction Project Management cumulative mastery exam: 5 major questions, High rigor, first official attempt locks the course grade.

### #### Construction Project Management cumulative mastery exam preparation checklist

- Review every unit in Construction Project Management until you can explain the governing method or decision logic without notes.
- Redo the homework checkpoints and one full practice round before the official attempt.
- Expect Summit to grade setup quality, assumptions, interpretation, and conclusion, not only raw answers.
- Use the AI tutor and guided practice only until you can defend the work independently.

## How to use this book before assessment

- Read the relevant chapter and rebuild both worked examples without looking.
- Solve the guided practice in the chapter before attempting the graded homework.
- Check your chapter-homework answers only after you complete a full written attempt.
- Review the quiz answer key after each chapter block and classify your errors by concept, setup, algebra, or interpretation.
- Before the official exam, revisit the chapter purposes, homework corrections, and answer-key notes rather than rereading formulas only.



# Chapter 7

## Back-of-book answers and solution outlines

### Guided practice answer key

#### Chapter 1: Project planning and schedule control

@@TOKEN\_0@@

1. Work a construction project management decision problem where scope and work breakdown changes the preferred option or the governing design check.

- Checkpoint answer: A strong checkpoint answer shows the governing criteria, explains how scope and work breakdown changes the option screen, and lands on a defensible recommendation. - Solution note: A complete design response frames the criteria, shows how scope and work breakdown drives the decision, and documents the recommendation in a review-ready sequence.

1. Work a construction project management decision problem where network logic changes the preferred option or the governing design check.

- Checkpoint answer: A strong checkpoint answer shows the governing criteria, explains how network logic changes the option screen, and lands on a defensible recommendation. - Solution note: A complete design response frames the criteria, shows how network logic drives the decision, and documents the recommendation in a review-ready sequence.

1. Work a construction project management decision problem where schedule development changes the preferred option or the governing design check.

- Checkpoint answer: A strong checkpoint answer shows the governing criteria, explains how schedule development changes the option screen, and lands on a defensible recommendation. - Solution note: A complete design response frames the criteria, shows how schedule development drives the decision, and documents the recommendation in a review-ready sequence.

## #### Chapter 2: Cost, resources, and project controls

@@TOKEN\_0@@

1. Work a construction project management decision problem where cost baselines changes the preferred option or the governing design check.

- Checkpoint answer: A strong checkpoint answer shows the governing criteria, explains how cost baselines changes the option screen, and lands on a defensible recommendation. - Solution note: A complete design response frames the criteria, shows how cost baselines drives the decision, and documents the recommendation in a review-ready sequence.

1. Work a construction project management decision problem where resource planning changes the preferred option or the governing design check.

- Checkpoint answer: A strong checkpoint answer shows the governing criteria, explains how resource planning changes the option screen, and lands on a defensible recommendation. - Solution note: A complete design response frames the criteria, shows how resource planning drives the decision, and documents the recommendation in a review-ready sequence.

1. Work a construction project management decision problem where progress measurement changes the preferred option or the governing design check.

- Checkpoint answer: A strong checkpoint answer shows the governing criteria, explains how progress measurement changes the option screen, and lands on a defensible recommendation. - Solution note: A complete design response frames the criteria, shows how progress measurement drives the decision, and documents the recommendation in a review-ready sequence.

## #### Chapter 3: Contracts, risk, and delivery systems

@@TOKEN\_0@@

1. Work a construction project management decision problem where contract types changes the preferred option or the governing design check.

- Checkpoint answer: A strong checkpoint answer shows the governing criteria, explains how contract types changes the option screen, and lands on a defensible recommendation. - Solution note: A complete design response frames the criteria, shows how contract types drives the decision, and documents the recommendation in a review-ready sequence.

1. Work a construction project management decision problem where risk allocation changes the preferred option or the governing design check.

- Checkpoint answer: A strong checkpoint answer shows the governing criteria, explains how risk allocation changes the option screen, and lands on a defensible recommendation. - Solution note: A complete design response frames the criteria, shows how risk allocation drives the decision, and documents the recommendation in a review-ready sequence.

1. Work a construction project management decision problem where delivery systems changes the preferred option or the governing design check.

- Checkpoint answer: A strong checkpoint answer shows the governing criteria, explains how delivery systems changes the option screen, and lands on a defensible recommendation. - Solution note: A complete design response frames the criteria, shows how delivery systems drives the decision, and documents the recommendation in a review-ready sequence.

#### Chapter 4: Integrated project management package

@@TOKEN\_0@@

1. Work a construction project management decision problem where package scope changes the preferred option or the governing design check.

- Checkpoint answer: A strong checkpoint answer shows the governing criteria, explains how package scope changes the option screen, and lands on a defensible recommendation. - Solution note: A complete design response frames the criteria, shows how package scope drives the decision, and documents the recommendation in a review-ready sequence.

1. Work a construction project management decision problem where control integration changes the preferred option or the governing design check.

- Checkpoint answer: A strong checkpoint answer shows the governing criteria, explains how control integration changes the option screen, and lands on a defensible recommendation. - Solution note: A complete design response frames the criteria, shows how control integration drives the decision, and documents the recommendation in a review-ready sequence.

1. Work a construction project management decision problem where executive summary changes the preferred option or the governing design check.

- Checkpoint answer: A strong checkpoint answer shows the governing criteria, explains how executive summary changes the option screen, and lands on a defensible recommendation. - Solution note: A complete design response frames the criteria, shows how executive summary drives the decision, and documents the recommendation in a review-ready sequence.

## Homework answer key

#### Homework Set 1: Project planning and schedule control

1. Prepare a construction project management design check or option screen focused on scope and work breakdown. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through scope and work breakdown, documents the governing check, and ends with a review-ready recommendation.

1. Prepare a construction project management design check or option screen focused on network logic. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through network logic, documents the governing check, and ends with a review-ready recommendation.

1. Prepare a construction project management design check or option screen focused on schedule development. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through schedule development, documents the governing check, and ends with a review-ready recommendation.

1. Prepare a construction project management design check or option screen focused on critical path reasoning. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through critical path reasoning, documents the governing check, and ends with a review-ready recommendation.

#### Homework Set 2: Cost, resources, and project controls

1. Prepare a construction project management design check or option screen focused on cost baselines. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through cost baselines, documents the governing check, and ends with a review-ready recommendation.

1. Prepare a construction project management design check or option screen focused on resource planning. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through resource planning, documents the governing check, and ends with a review-ready recommendation.

1. Prepare a construction project management design check or option screen focused on progress measurement. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through progress measurement, documents the governing check, and ends with a review-ready recommendation.

1. Prepare a construction project management design check or option screen focused on control updates. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through control updates, documents the governing check, and ends with a review-ready recommendation.

### #### Homework Set 3: Contracts, risk, and delivery systems

1. Prepare a construction project management design check or option screen focused on contract types. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through contract types, documents the governing check, and ends with a review-ready recommendation.

1. Prepare a construction project management design check or option screen focused on risk allocation. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through risk allocation, documents the governing check, and ends with a review-ready recommendation.

1. Prepare a construction project management design check or option screen focused on delivery systems. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through delivery systems, documents the governing check, and ends with a review-ready recommendation.

1. Prepare a construction project management design check or option screen focused on change and claims overview. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through change and claims overview, documents the governing check, and ends with a review-ready recommendation.

### #### Homework Set 4: Integrated project management package

1. Prepare a construction project management design check or option screen focused on package scope. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through package scope, documents the governing check, and ends with a review-ready recommendation.

1. Prepare a construction project management design check or option screen focused on control integration. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through control integration, documents the governing check, and ends with a review-ready recommendation.

1. Prepare a construction project management design check or option screen focused on executive summary. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through executive summary, documents the governing check, and ends with a review-ready recommendation.

1. Prepare a construction project management design check or option screen focused on review and revision. Show the governing criteria, tradeoffs, and the recommendation you would defend.

- Answer / solution summary: A strong submission frames the criteria, compares the relevant options through review and revision, documents the governing check, and ends with a review-ready recommendation.

## Quiz answer key

#### Quiz 1: Project planning and schedule control

1. Which topic is explicitly central to Project planning and schedule control?

- Answer key: Scope and work breakdown. Scope and work breakdown is one of the direct topics named in Project planning and schedule control.

1. Before working forward in Project planning and schedule control, what should you identify first?

- Answer key: Accepted answer(s): criteria, constraints, tradeoffs, recommendation. High-quality work in Project planning and schedule control starts by identifying criteria, constraints, tradeoffs, recommendation, not by jumping directly into the middle of the method.

1. Which deliverable belongs to Project planning and schedule control?

- Answer key: Scheduling homework. Scheduling homework is a direct deliverable from Project planning and schedule control, so students are expected to complete it before moving on.

1. Name one direct topic from Project planning and schedule control.

- Answer key: Accepted answer(s): Scope and work breakdown, Network logic, Schedule development, Critical path reasoning. Scope and work breakdown, Network logic, Schedule development, Critical path reasoning are direct topics in Project planning and schedule control. A strong student should be able to name them without opening the notes.

#### Quiz 2: Cost, resources, and project controls

1. Which topic is explicitly central to Cost, resources, and project controls?

- Answer key: Cost baselines. Cost baselines is one of the direct topics named in Cost, resources, and project controls.

1. Before working forward in Cost, resources, and project controls, what should you identify first?

- Answer key: Accepted answer(s): criteria, constraints, tradeoffs, recommendation. High-quality work in Cost, resources, and project controls starts by identifying criteria, constraints, tradeoffs, recommendation, not by jumping directly into the middle of the method.

1. Which deliverable belongs to Cost, resources, and project controls?

- Answer key: Cost-control worksheet. Cost-control worksheet is a direct deliverable from Cost, resources, and project controls, so students are expected to complete it before moving on.

1. Name one direct topic from Cost, resources, and project controls.

- Answer key: Accepted answer(s): Cost baselines, Resource planning, Progress measurement, Control updates. Cost baselines, Resource planning, Progress measurement, Control updates are direct topics in Cost, resources, and project controls. A strong student should be able to name them without opening the notes.

#### Quiz 3: Contracts, risk, and delivery systems

1. Which topic is explicitly central to Contracts, risk, and delivery systems?

- Answer key: Contract types. Contract types is one of the direct topics named in Contracts, risk, and delivery systems.

1. Before working forward in Contracts, risk, and delivery systems, what should you identify first?

- Answer key: Accepted answer(s): criteria, constraints, tradeoffs, recommendation. High-quality work in Contracts, risk, and delivery systems starts by identifying criteria, constraints, tradeoffs, recommendation, not by jumping directly into the middle of the method.

1. Which deliverable belongs to Contracts, risk, and delivery systems?

- Answer key: Risk register. Risk register is a direct deliverable from Contracts, risk, and delivery systems, so students are expected to complete it before moving on.

1. Name one direct topic from Contracts, risk, and delivery systems.

- Answer key: Accepted answer(s): Contract types, Risk allocation, Delivery systems, Change and claims overview. Contract types, Risk allocation, Delivery systems, Change and claims overview are direct topics in Contracts, risk, and delivery systems. A strong student should be able to name them without opening the notes.

#### Quiz 4: Integrated project management package

1. Which topic is explicitly central to Integrated project management package?

- Answer key: Package scope. Package scope is one of the direct topics named in Integrated project management package.

1. Before working forward in Integrated project management package, what should you identify first?

- Answer key: Accepted answer(s): criteria, constraints, tradeoffs, recommendation. High-quality work in Integrated project management package starts by identifying criteria, constraints, tradeoffs, recommendation, not by jumping directly into the middle of the method.

1. Which deliverable belongs to Integrated project management package?

- Answer key: Management package. Management package is a direct deliverable from Integrated project management package, so students are expected to complete it before moving on.

1. Name one direct topic from Integrated project management package.

- Answer key: Accepted answer(s): Package scope, Control integration, Executive summary, Review and revision. Package scope, Control integration, Executive summary, Review and revision are direct topics in Integrated project management package. A strong student should be able to name them without opening the notes.

## Mastery exam solution outlines

#### Construction Project Management cumulative mastery exam

1. Prepare a construction project management design response that uses scope and work breakdown to compare alternatives and defend a recommendation.

- What to show: Criteria and constraints; The governing design check or comparison; A recommendation that could survive review - Solution outline: State the criteria, limits, and design assumptions before comparing any options. Use scope and work breakdown and network logic to show what drives the recommendation. End with the selected direction and a short defense of why it is the strongest option.

1. Prepare a construction project management design response that uses cost baselines to compare alternatives and defend a recommendation.

- What to show: Criteria and constraints; The governing design check or comparison; A recommendation that could survive review - Solution outline: State the criteria, limits, and design assumptions before comparing any options. Use cost baselines and resource planning to show what drives the recommendation. End with the selected direction and a short defense of why it is the strongest option.

1. Prepare a construction project management design response that uses contract types to compare alternatives and defend a recommendation.

- What to show: Criteria and constraints; The governing design check or comparison; A recommendation that could survive review - Solution outline: State the criteria, limits, and design assumptions before comparing any options. Use contract types and risk allocation to show what drives the recommendation. End with the selected direction and a short defense of why it is the strongest option.

1. Prepare a construction project management design response that uses package scope to compare alternatives and defend a recommendation.

- What to show: Criteria and constraints; The governing design check or comparison; A recommendation that could survive review - Solution outline: State the criteria, limits, and design assumptions before comparing any options. Use package scope and control integration to show what drives the recommendation. End with the selected direction and a short defense of why it is the strongest option.

1. Write a cumulative construction project management response that explains what high-quality work looks like from setup to final defense in this course.

- What to show: A staged workflow from the opening setup to the final conclusion; The assumptions or judgment points that control course-level work; A clear statement of what mastery looks like in practice - Solution outline: Use the course outcome "Develop and interpret schedules, cost controls, and risk tools for construction work." as the anchor for the response. Show how criteria, constraints, tradeoffs, recommendation appear in a disciplined course-level workflow. End by explaining what would make a submission reviewable, defensible, and ready to earn full credit.

## Reference note

For the full bibliography behind this textbook, use @@TOKEN\_0@@. The answer key in this book is Summit-authored and aligned to the live course runtime.