



**SUCCESSION
TRAINING**

BSB51415 Diploma of Project Management



Constraint Management

Version 1.11 Produced 18 October 2018

Copyright © 2018 CSTC Pty Ltd. All rights reserved. No part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system other than pursuant to the terms of the Copyright Act 1968 (Commonwealth), without the prior written permission of CSTC Pty Ltd

Version control & document history

Date	Summary of modifications made	Version
5 May 2016	Version 1.0 produced following Training Package update	1.0
22 June 2017	Updated Table of Contents	1.1
18 October 2018	Change to Practical Assessment	1.11

TABLE OF CONTENTS

This is an interactive table of contents. If you are viewing this document in Acrobat, clicking on a heading will transfer you to that page. If you have this document open in Word, you will need to hold down the Control key while clicking for this to work.

TABLE OF CONTENTS	4
ASSESSMENT WORKBOOK COVERSHEET	5
WRITTEN QUESTIONS	6
Part 1 – Project Scope	6
Part 2 – Project Time	18
Part 3 – Project Cost	27
Part 4 – Project Quality.....	31
CASE STUDY	37
Instructions to Student	37
Introduction.....	38
WORKBOOK CHECKLIST	57

ASSESSMENT WORKBOOK COVERSHEET

WORKBOOK:	Workbook 2
TITLE:	Constraint Management
FIRST AND SURNAME:	Brad Kayll
PHONE:	0422800669
EMAIL:	kowboy_54@hotmail.com

Please read the Candidate Declaration below and if you agree to the terms of the declaration sign and date in the space provided.

By submitting this work, I declare that:

- I have been advised of the assessment requirements, have been made aware of my rights and responsibilities as an assessment candidate, and choose to be assessed at this time.
- I am aware that there is a limit to the number of submissions that I can make for each assessment and I am submitting all documents required to complete this Assessment Workbook.
- I have organised and named the files I am submitting according to the instructions provided and I am aware that my assessor will not assess work that cannot be clearly identified and may request the work be resubmitted according to the correct process.
- This work is my own and contains no material written by another person except where due reference is made. I am aware that a false declaration may lead to the withdrawal of a qualification or statement of attainment.
- I am aware that there is a policy of checking the validity of qualifications that I submit as evidence as well as the qualifications/evidence of parties who verify my performance or observable skills. I give my consent to contact these parties for verification purposes.

Name: Brad Kayll

Signature: BK

Date:

29/07/2020

WRITTEN QUESTIONS

1. Which of the following are project initiation documentation required at the start of the project?
- Select all that apply.

	a. Communications log
x	b. Project plan
	c. Work Breakdown Structure (WBS)
	d. Gantt Chart
x	e. Project charter
	f. Risk management

2. Which of the following are components of a project scope-management plan?

Select all that apply.

x	a. Project deliverables
	b. Project staff assignments
	c. Change request
x	d. Project justification
x	e. Product description
	f. Performance reports
x	g. Project objectives
	h. Project funding requirements
	i. Quality metrics
	j. Budget forecasts

5. Which of the following are procedures that typically must be followed under change control processes?

Select all that apply.

	a. Project manager seeks advice from supervisor regarding changes in cost.
	b. Project manager assigns a project team member to recalculate for the critical path.
x	c. Project manager provides the change request to the appropriate stakeholder for approval.
x	d. The stakeholder considers the change request and advises the project manager.
x	e. The project manager updates the project plan and other documentation where required.
x	f. Project manager drafts the change request.
	g. Project manager delegates the authority to the project team members in advising other stakeholders of the changes.
x	h. The project manager advises relevant stakeholders (sponsor, team members, etc.) of the changes.
x	i. Details of the proposed change to be communicated to the project manager.
	j. The project sponsor and owner may automatically terminate the project contract.

8. List three (3) ways in which the Work Breakdown Structure (WBS) can be created.
 - a. Using major deliverables as the first level of decomposition.
 - b. Using phases of the project lifecycle as the first level of decomposition, with the product and project deliverables inserted in the second level.
 - c. Using sub-projects, which may be developed by organisations outside the project team such as contracted work.

10. In your own words, discuss the significance of scope management.

Do not exceed 150 words.

Scope management is the defined features and functions of a product, or the scope of work needed to finalise and handover a product. Scope involves getting information required to start a project, and the features the product would have that would meet its stakeholders requirements. It allows project managers to allocate the proper labour and costs necessary to complete the project. Therefore it is crucial in the success of the project and its significance can not be underestimated.

Scope management ensures the project team understands the project and their roles within it, and the portion of the scope they are responsible for. This helps to avoid issues with the project as it moves through its cycle, times and budgets are difficult to estimate if workers don't understand the scope.

Scope management is the defined features and functions of a product, or the scope of work needed to finalise and handover a product. Scope involves getting information required to start a project, and the features the product would have that would meet its stakeholders requirements. It allows project managers to allocate the proper labour and costs necessary to complete the project. Therefore it is crucial in the success of the project and its significance can not be underestimated.

Scope management ensures the project team understands the project and their roles within it, and the portion of the scope they are responsible for. This helps to avoid issues with the project as it moves through its cycle, times and budgets are difficult to estimate if workers don't understand the scope.

11. The *PMBOK Guide* outlines the following processes in project scope management. List one (1) tool or technique used in each process.

Project Scope Management	Tool or technique
Collect requirements	Interviews
Define scope	Product analysis
Create WBS	Decomposition
Verify scope	Inspection
Control scope	<i>Variance analysis</i>

12. Consider the roles and responsibilities of the project manager in project planning. List five (5) roles of the project manager in project planning and list at least one responsibility for each of these roles.

Roles (list five (5))	Responsibilities (List at least one (1) for each role)
Scope Management	Project Managers need to know who the stakeholders are and what their expectations of the project are, they need to understand the project intimately and they need to get workers into their roles and their specific tasks to ensure the project is delivered on time and on budget and at a very high level.
Time management	The Project Manager needs to examine and determine Scheduling and time frames of jobs and tasks to again deliver a high standard project and to ensure each member of the team keeps in the timeframe decided by the PM.
Cost management	Project managers make sure the project goes ahead within the budget and that tasks are completed by team members under budget to ensure maximum profitability on the project.
Quality management	Project manager monitors the QA of the project and monitors QA systems, delegates QA responsibilities to different members of the team, that is the site manager may be in charge of finishing or commissioning of the project.
Closing	Project manager makes sure the deliverables are handed over to the project sponsor on time and under budget and of the expectations of the major stakeholders.

Part 2 – Project Time

1. The following are estimation tools and techniques used in determining duration. Match each tool and technique to its correct description.

Write the letters that correspond to your answers in the spaces provided.

	Estimation tools and techniques	Description
B	Analogous estimating	a. This technique uses a statistical relationship between historical data and other variables to calculate an estimate for activity duration.
A	Parametric estimating	b. This uses parameters such as duration, budget size, weight, and complexity, from a previous, similar project, as the basis for estimating the same parameter to measure for a future project. This technique relies on the actual duration of previous, similar projects as the basis for estimating the duration of the current project.
E	Three-point estimating	c. This is guided by historical information. It provides duration estimate information or recommended maximum activity durations from prior similar projects. This can also be used to determine whether to combine methods of estimating and how to reconcile differences between them.
C	Expert judgement estimating	d. Contingencies are accounted for into the overall project schedule to account for schedule uncertainties.
D	Reserve analysis	e. This technique uses a mathematical formula to determine a weighted average of estimates. It uses the formula: $Te = \frac{To + 4 \times Tm + Tp}{6}$.

5. Schedule control is the process of monitoring the status of the project to update project progress and manage changes to the schedule baseline.

Which of the following are processes that are involved in schedule control?

Select all that apply.

X	a. Determining the current status of the project schedule.
	b. Defining activities or specific actions to be performed to produce project deliverables
X	c. Influencing the factors that create schedule changes
	d. Decomposing total project work into its lowest levels.
X	e. Determining that the project schedule has changed
	f. Estimating duration and resource effort for the project.
X	g. Managing the actual changes as they occur.

8. The following are tools and techniques used in project scheduling. Match each tool and technique to its correct description.

Write the letters that correspond to your answers in the spaces provided.

	Project scheduling tools and techniques	Description
B	Schedule network analysis	a. This is the process of looking at all of the activities that must be completed, and calculating the 'best line' – or critical path – to take so that you'll complete the project in the minimum amount of time. The method calculates the earliest and latest possible start and finish times for project activities, and it estimates the dependencies among them to create a schedule of critical activities and dates.
A	Critical Path Analysis	b. This is a graphic representation of the project's activities, the time it takes to complete them, and the sequence in which they must be done. Project management software is typically used to create these analyses. Common formats for this include Gantt Charts and PERT Charts
D	Schedule compression	c. They expedite the scheduling process by generating start and finish dates based on the inputs of activities, network diagrams, resources, and activity durations.
C	Automated scheduling tools	d. This tool helps shorten the total duration of a project by decreasing the time allotted for certain activities. It's done so that you can meet time constraints, and still keep the original scope of the project.

9. Which of the following statements accurately explain the work breakdown structure (WBS) including its application in project schedules?

Select all that apply.

X	a. Work breakdown structure (WBS) is the subdivision of project deliverables and project work into smaller, more manageable components.
	b. The work breakdown structure (WBS) identifies project personnel who are responsible for each project task.
X	c. Work breakdown structure (WBS) helps define activities of the project which provide the basis for estimating, scheduling, executing, and monitoring and controlling the project work.
	d. The work breakdown structure (WBS) is used to represent the full project scope of the project.
X	e. The work breakdown structure provides the relationships among all components of the project and the project deliverables.
X	f. The work breakdown structure (WBS) is used as the basis for the scope baseline which is used in identifying activities or specific actions to be performed to produce of the project deliverables.
	g. Project work at lowest levels are not included in the work breakdown structure (WBS)

- Do not exceed fifty (50) words for each discussion.

2. The following are different tools and techniques used in cost management. Match each to its correct description.

Write the letters that correspond in the spaces provided.

	Strategy	Description
<i>B</i>	Analogous estimating	a. This is used to establish both the contingency reserves and the management reserves for the project with regards to cost.
<i>C</i>	Parametric estimating	b. This strategy uses the values of costings from a previous, similar project as the basis for estimating the same parameter or measure for a current project. This is used when the current project is similar to a previous one in terms of defined parameters.
<i>E</i>	Cost aggregation	c. This uses a statistical relationship between historical data and other variables to calculate and estimate for cost. This technique is used to produce higher levels of accuracy depending upon the sophistication and underlying data built into the model. Estimates made through this project can be applied to the whole project or to segments of a project.
<i>A</i>	Reserve analysis	d. These are used to develop mathematical models to predict total project costs.
<i>D</i>	Historical relationships	e. Cost estimates are combined by work packages in accordance with the Work Breakdown Structure. The work package cost estimates are then combined for the higher component levels of the WBS and ultimately for the entire project.
<i>G</i>	Earned value management	f. In this technique cost performance measurements are used to assess the magnitude of variation to the original cost baseline.

<i>F</i>	Variance analysis	g. This is commonly used as a performance measurement. It integrates project scope, cost, and schedule measure to help the project management team assess and measure project performance and progress.
----------	-------------------	---

3. List four (4) processes which are followed in monitoring the project costs against outcomes to ensure that additional expenses are not incurred.

- a. Excel spreadsheet for financial information
- b. Sending invoices out periodically
- c. Paying invoices when due
- d. Cross checking incoming invoices against supplier quotes and sub-contractor agreements

Part 4 – Project Quality

1. In your own words, discuss each of the following key concepts in Quality Management.

Do not exceed 100 words for each discussion.

Key Concepts in Quality Management	Discussion
Customer satisfaction	<i>Customer satisfaction should be defined as a measurement that determines how happy customers are with a projects product, services and capabilities. The key for the project is to have the major stakeholders satisfaction as high as possible.</i>
Prevention over inspection	The cost of quality includes funds spent during the project to avoid failures and money spent during and after the handover of the project due to these failures.
Continuous improvement	<i>Continuous improvement is the ongoing effort to improve services and products within our company as time progresses. These can include small everyday improvements or major ones. It is a crucial part of quality management with a project and a company success. Any lessons learnt to be implemented in future projects</i>

2. In your own words, discuss the difference between Quality Assurance and Quality Control.

Do not exceed 100 words.

Quality assurance is the maintenance of a desired level of quality in a service or product, especially by means of attention to every stage of the process of delivery or production.

Quality control is a set of procedures intended to ensure that the company's product or service adheres to the defined set of criteria or meets the requirements of the project sponsor or client.

3. The following are standards that could apply in various projects. In your own words, discuss each standard. Do not exceed fifty (50) words for each discussion.

People standards	<i>This is simply the requirements of the employees of the project, which would include qualifications and experience ie: what licences and tickets the employee holds to perform up to standard and the length of time the team member has been in the industry.</i>
Process standards	These are statements that describe skills workers should develop to enhance the process of production, these are generic skills that are applicable to the tasks associated with delivery a product of high standards. These are the standards to ensure high QA, high processes and implementing systems to assist the project.
Product / service standards	This takes into account all the processes/standards mentioned above to deliver a successful product which is of high standard, which includes quality control during the production process to ensure all levels of production are of high standard and an end product which meets all quality criteria. Which could include AS 3500 standards.

4. The following are quality assurance and control methods, techniques and tools. Match each to its correct description.

Write the letters that correspond to your answers in the spaces provided.

	Methods, tools, techniques	Description
<i>H</i>	Benchmarking standards	a. This is a distribution of dots comparing two variables. If the two variables are completely independent you would expect the dots to be evenly distributed randomly across the graph. If there is a strong relationship though, the graph will show a straight line or a mathematical curve going through it.
<i>G</i>	Brainstorming sessions	b. These are graphical representations showing a visual impression of the distribution of data. Usually it shows the frequency up the Y axis of the bar graph and the measuring variable along the X axis.
<i>D</i>	Control charts	c. It is a graph where the X axis is time dependent. This allows you to look for time-based cycles in processes.
<i>F</i>	Flowcharts	d. These are also known as Shewhart charts or process-behaviour charts. These charts are used to statistically measure the quality characteristics of a process are under control. This is based on a statistical analysis where a centre line is drawn for the mean of the output, then an upper control limit and a lower control limit is created either side of the centre line. The process is then measured over a period of time and the results plotted on the graph. Once the graph has been created, it can be analysed to test the stability of the process and also any cycles of errors.
<i>B</i>	Histograms	e. It is very similar to a histogram, but it includes a line over the graph indicating the cumulative distribution of the results.

5. List five (5) responsibilities of the project manager in quality management.

- Determining the quality standards for the project deliverables
- Determining the quality standards for the project processes
- Documenting all the required standards in the project plan
- Leading or coordinating project QA and QC activities
- Reporting of quality outcomes to the project sponsor

11	Plant additional plants
2	Move gravel to car park
1	Expand car park
12	Remove greenhouses
9	Plant plants from greenhouses
3	Seal car park
6	Soil preparation
7	Add boulders
5	Construct stone paving pathway
10	Purchase additional plants
4	Landscape over old access roads

4. Review the Project Plan. The change request has outlined one change in the scope of the project.
 - a. What is the change in scope?
 - b. How does this change in scope impact the overall duration of the project?
 - c. How does this change in scope impact the quality aspect of the project?

5. Why does the change request only list one change in project cost, yet when you look at the financial tables the costs seem to have increased in numerous parts of the project not even related to the item in the change request?

9. What is the total increase in cost of the project as a result of this change request?

The total cost in the change request is \$17,900.

10. List five (5) exclusions under Stage 2 – Building Support of the Scope Management Plan.

- a. Maintaining the access roads
- b. Creation and construction of additional retaining walls
- c. Installation the new utilities
- d. Weather damage
- e. Provision of delivery of pipes and septic tanks

11. Review the Project Plan. Does it follow the change management procedure? Explain your reasoning.

Do not exceed 50 words.

The project plan does not follow the change management procedure, due to Sam Ng forgetting to fill it in, therefore the change register was the only one not followed.

14. If Sam was to visit the site on Thursday, 22 September, he will see that two (2) tasks are in progress, namely:
- Construction of retaining walls.
 - Install and compact soil behind walls.

According to the procedure documents, these two activities cannot happen at the same time. The retaining wall has to be built first. Once construction is completed, the soil needs to be added behind. Why are these two tasks in progress on the same day?

Multiple retaining walls are being constructed. One of these walls can begin construction on the 22nd of September and the other wall is already completed, therefore both of these can be backfilled and compacted simultaneously.

15. According to the Gantt Chart, if there is a delay in the completion of Task 57 'Construct stone paving walkway',
- Which tasks, if any, are immediately delayed?
 - Will this delay push out the completion of the project? Why or why not?
 - Discuss how this could affect the resourcing of the project.
 - List one (1) risk that could arise from this issue.

- Two of the tasks are immediately delayed. These are task #59, which is erect signs and, task #62, soil preparation
- The completion will be pushed out slightly because task #57 is on the critical path
- Contractor resources may be allocated to other tasks as the delay in these tasks may affect their ability to proceed with other scheduled tasks
- As contractor resources are committed to other projects this project may not be able to be completed on time due to the other commitments.

16. What is the total budget for the project expenditure?

The total budget for the project expenditure is \$462, 153

17. Sam is very concerned about the cash flow of the project.
 - a. What is the problem?
 - b. What would you suggest be done to rectify the cash flow issue?

- a. By the first progress payment, the overdraft for us will be \$235,000+, which will be a major problem when senior executives read this.
- b. One of the solutions to this problem is to raise a change request that will allow for earlier payments in initial project spendings.

18. Discuss whether Awesome Landscapes should seek increased funding from Massive Eco-development Corporation to absorb some or all of these cost increases.
- Your discussion must be 200 – 300 words in length.
- Guidance:
- The change requests have incurred extra expense, yet the funding to be paid by Massive Eco-development Corporation has not changed.
- If you believe Awesome Landscapes should seek increase funding from Massive Eco-development Corporation, provide a strong argument for your case. If not, explain your reasoning.

Your discussion must be 200 – 300 words in length.

Guidance:

The change requests have incurred extra expense, yet the funding to be paid by Massive Eco-development Corporation has not changed.

If you believe Awesome Landscapes should seek increase funding from Massive Eco-development Corporation, provide a strong argument for your case. If not, explain your reasoning.

There is definitely a case for increased funding due to the problems that the project has incurred. Massive Eco-developments have a set fixed price in this contract so they are expected to take on any extra costs such as these in variations, these problems were not Awesome Landscaping issues therefore we should not wear the costs.

There is a cost increase to build the new and extra retaining walls, therefore Massive Eco-developments should absorb these costs and we should pass them onto them. Along with the labour costs and other costs that come with the delay, there is a massive cost in additional gravel to go along with the additional retaining walls.

All of these reasons should lead towards a seeking of additional funds to be sort after by Awesome Landscaping from Massive Eco-developments.

19. Complete the following Audit Template with the standards determined in the previous question (Case Study Question 18). This will be given to an internal auditor to audit the financial processes at various points along the project.

Guidance: Complete only the fields highlighted in yellow. Do not complete the 'Assessment' and 'Comment' fields under 'Audit of Management of Project'.

Quality Audit Template

Project Name: *Cascade Peak Chalets Landscaping Project*

Prepared by: Brad Kayll

Date: 30/7/2020

Project Manager: *Sam Ng, Awesome Landscapes*

Recommended Action(s)/Lessons Learned Regarding Management of the Project:			
1.			
2.			
3.			
Additional Audit Comments:			
1.			
2.			
3.			
Have you attached additional material(s)?		yes	n o
Name(s) of attachment(s):			
1.			
2.			
Audit Report Submitted To:	Date:		

20. Sam has provided you with the following audit from a previous project (landscaping the new Cascade Peak Shopping Centre). Evaluate the audit report below and answer the following questions:

- a. What was the cause of the unsatisfactory results?
- b. What action would you recommend to prevent the issue coming up again in this project?

- a. The cause of the unsatisfactory result is that tasks are only been communicated as per the Gantt chart. The site supervisor is having to seek clarification on tasks and the requirements of them on a regular basis. The timing of the communication can be improved if there was not need for clarification of the tasks. There is lack of details in the meeting minutes.
- b. Firstly the project manager needs to prepare task briefs in enough time in advance to ensure the required level of detail and time is appropriate and adequate for the site manager. Secondly, the task briefs are to be supplied with all relevant attachments such as specs and detailed plans.

Quality Audit Template		
Project Name: <i>Cascade Peak Chalets Landscaping Project</i>		
Prepared by: <i>Sam Ng</i>		
Date: <i>17 August 2015</i>		
Project Manager: <i>Sam Ng, Awesome Landscapes</i>		
Project Phase: <i>Implementation</i>	Overall Project Status: <i>On schedule</i>	
Audit Date: <i>17 August 2011</i>	Audit Number: <i>26</i>	Audit Leader: <i>Sam Ng</i>
Audit Team: <i>Sam Ng, John Cowley, Ann Deak.</i>		
Goal(s) of This Specific Audit: <i>To evaluate the communication and reporting processes.</i>		
Audit of Management of Project:		
1. Are tasks being communicated to site supervisor in a reasonable amount of time?	Assessment: Satisfactory.	Comment: N/A

2. Are tasks being communicated to site supervisor of sufficient detail?	Assessment: Not satisfactory.	Comment: Tasks only being communicated as per Gantt chart. Site supervisor having to seek clarification regularly on requirements of tasks.
3. Are tasks being communicated by the site supervisor to the team members and contractors done in a reasonable amount of time?	Assessment: Not satisfactory.	Comment: Timing of communication can be improved if there wasn't the need for clarification of the details of the tasks.
4. Are tasks being communicated by the site supervisor to the team members and contractors of sufficient detail?	Assessment: Satisfactory.	Comment: N/A
Overall Assessment of Management of Project: Tasks being communicated to the supervisor do not have the level of detail required by the site supervisor. In particular detailed plans are not provided with the task briefs. Some delays in commencing tasks have been experienced as the site supervisor has awaited clarification from the project manager.		
Recommended Action(s)/Lessons Learned Regarding Management of the Project: 1. Project manager to prepare task briefs in enough time to add the required level of detail. 2. Task briefs are to be supplied with all relevant attachments such as detailed plans.		
Additional Audit Comments: 1. 2. 3.		
Have you attached additional material(s)?		yes ☒ no ☐
Audit Report Submitted To: Kim Nguyen		Date: 24/08/2015

WORKBOOK CHECKLIST

When you have completed this workbook, please ensure you have completed all parts of it:

Written Questions

Part 1 – Project Scope

Part 2 – Project Time

Part 3 – Project Cost

Part 4 – Project Quality

Case Study

Students must achieve a satisfactory result to ALL assessment tasks to be awarded COMPETENT for the unit relevant to this subject.

To award the student competent in the units relevant to this subject, the student must successfully complete all the requirements listed above according to the prescribed benchmarks.

End of Document