



**SUCCESSION
TRAINING**

BSB51415 Diploma of Project Management



Constraint Management

Version 1.11 Produced 18 October 2018

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Version control & document history

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ASSESSMENT WORKBOOK COVERSHEET

WORKBOOK:	Workbook 2
TITLE:	Constraint Management
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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.

Patrick Dangelmayer

**Patrick
Dangelmayer**

8/2/21

WRITTEN QUESTIONS

Part 1 – Project Scope

1. Which of the following are project initiation documentation required at the start of the project?

Select all that apply.

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

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

Select all that apply.

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

6. The following are methods of measuring work outcomes and progress against plans. Match each method to its correct description.

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

	Method	Description
C	Units completed	a. Also known as the 'steps' method, this is used for projects that involve subtasks that need to be completed in an orderly fashion.
A	Incremental milestones	b. In this method, tasks that are being calculated tend to occur over a longer duration time and include multiple subtasks, where subtasks can have different units of measurements.
D	Start / finish	c. This method is used when project tasks are done repeatedly. Assuming that each task is completed at the same amount of time, resources and effort, each task is counted and totaled.
B	Weighted or equivalent units	d. This method is used to determine the percentage of the work completed and the percentage of the work that is still yet to be completed.

9. The following are some problem areas in scope management. In your own words, briefly discuss each problem area.

Do not exceed 100 words for each discussion.

Problem areas	Discussion
Scope creep	Scope creep is a change in the projects requirements by the client. It is when extras are added in. Which are not covered under the original scope of works. Scope creep will cause arguments in a project as it will cost more.
Sponsor / project owner approval	The sponsor or project owner approval is required to sign of on the scope as well as any changes to the scope through the duration of the project. It is important to seek this approval as a project manager. To make sure everyone involved can be paid for the work done.
Project team accountability	This is to make sure the Project team is responsible for the deadlines of the project. That they are aware of the scope and project goals that they stay focused on the task to deliver the project on time and budget.

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

Do not exceed 150 words.

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

Do not exceed 150 words.

This is important in regards to managing scope creep and or scope growth. Without it the project team would not be aware of what is and what is not included. The Project manager must have a good understanding of the scope to ensure changes to the scope are captured and charged for correctly.

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	Facilitated workshop
Define scope	Expert judgement
Create WBS	Decomposition
Verify scope	Inspection
Control scope	Variance analysis

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)
write a scope	The scope will include what is agreed to buy the project sponsor and Project manager. This will become the project plan
Costs	The project manager will need to organise quotes from suppliers and contractors to work out the cost of the Project.
Organise Resources	Resources need to be available at the required time to complete works as required. To keep The project tracking on time and on budget.
Timeframes	Start and completion dates with a program for each discipline.
Quality requirements	This includes Council requirements. Regulations and Manufactures specifications. This will assist with selecting suppliers and contractors.

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: $Te = \frac{To + 4 \times Tm + Tp}{6}$.

3. In identifying the critical path, the following parameters need to be determined for each task. Discuss each parameter.

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

Parameter	Discussion
ES	ES is an abbreviation for earliest start. This is the earliest time a particular task can start. Making sure previous tasks are completed prior to the new task beginning.
EF	EF is an abbreviation for earliest finish time. This is calculated by adding the ES time and duration time together. The EF is an important calculation for tasks that have another task after it. That relies on the previous task being completed.
LF	LF is an abbreviation for the latest finish time. This is the latest date in which a task can be completed without delaying the project. LF is used for tasks that do not have following task.
LS	LS is an abbreviation for the latest start time. This is calculated by taking the task duration from the latest finish time. If previous tasks have gone over time. LS is used to determine the latest start time for finishing tasks.

4. Which of the following statements accurately explain the process of developing the project schedule, including the schedule baseline?

Select all that apply.

*	a. Developing the schedule is the process of analysing activity sequences, durations, resource, requirements, and schedule constraints to create the project schedule.
*	b. The project schedule and schedule baseline are developed or established using the activity lists, activity attributes, project scope statement as the bases.
*	c. Entering the activities, durations, and resources into the scheduling tool generates the schedule baseline.
	d. Tools and techniques used in developing the project schedule and schedule baseline include decomposition of the total project work.
	e. Developing the schedule baseline starts and ends in the planning phase of the project.

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.

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

6. Consider the methods used in project time management.
 - a. In your own words, discuss the application/use of the Gantt Chart. Do not exceed fifty (50) words.
 - b. List three (3) project data generated from the Gantt Chart.
 - c. List three (2) limitations of the Gantt Chart.

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.

Part 3 – Project Cost

1. The following are processes involved in project cost management including budgeting the cost of the project. In your own words, discuss each.

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

Estimating costs	Estimating costs is the prediction on the financial cost of completing the project based on the information known at the time. The estimator will calculate all materials and labour required.
Determine budget	Determining a budget is looking at the estimated costs to create a cost baseline. To determine the budget, the WBS of the project along with estimated costs. The budget may differ from the formal cost once the project is underway.
Control cost	Controlling costs is the process of checking on money spent in relation to tasks completed. During this process the budget may need to be updated once the actual expenses are known.

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

- a. Using tools to manage the project finances. Like a spreadsheet or finance software.
- b. Sending invoices on a regular basis
- c. Paying invoices promptly
- d. Checking incoming invoices against contracts, quotes, agreements etc.

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	This will reflect the quality of the project. If the customers expectations are met too a high standard. They will be very happy and be proud of the project. Customer satisfaction is a crucial part of the project to avoid project failure and securing ongoing work with the client.
Prevention over inspection	This is a term used in project management that refers to the cost of quality. (COQ). This refers to spending extra money on a quality solution instead of taking alternative cheap options which ultimately will fail and cost more to fix once the project is complete.
Continuous improvement	This is the process in continuing to better your services, products and process of a project. This process will improve the final project results. And avoid previous problems that have been encountered. These can be very small or involve the whole business structure.

2. In your own words, discuss the difference between Quality Assurance and Quality Control.
- Do not exceed 100 words.

The main difference between (QA) Quality assurance and (QC) Quality control is that QA forms the process standards and techniques in place prior to completing the project. And QC is the process of inspecting for any defects or mistakes to make sure a quality end product is produced.

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	This is the standard for the quality of people who will be employed on the project to make sure they have the correct, Qualifications, Licences, Certificates. And have experience in there field.
Process standards	This is the standard for the project to be delivered, Quality assurance review. This is done to make sure the procedures within a project run well.
Product / service standards	These are standards which examine the end product. This involves quality control standards. This is to make sure regulations are being followed.

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
H	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.
G	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.
D	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.
F	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.
B	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 process
- Documentation of all standards
- Doing audits on the project
- Leading project QA and QC activities.

Instructions to Student

In the real world you are likely to encounter the situation where you enter a project, taking over from another project manager. The documentation that is handed over to you is not necessarily up to scratch, and there could be serious issues with the project. This assessment captures that real life scenario.

The case studies are the first part of dealing with “multiple complex projects” required in all the units of this subject. The other assessment covering this requirement is the practical assessment. When you have completed the case studies you will be able to commence the practical assessment which covers the generic skills needed to function as an effective project team member. This assessment on the other hand covers the application of the underpinning knowledge and background theory.

Introduction

You have been appointed as a project management consultant to the project team at Awesome Landscapes Pty Ltd. Specifically, you are required to provide independent advice on seeing their current project throughout its entire lifecycle.

You have already provided advice to Awesome Landscapes in the previous workbook.

Today is 24 July 20xx. The project will shortly progress into the implementation stage. You have now been provided with up-to-date project documentation below, including an updated Project Plan. The project steering committee have reviewed the Project Plan, but they wish to have you conduct an independent evaluation of the project prior to signing it off.

As part of your consultancy services, you will be assisting the team in addressing issues around project constraints by answering the questions that follow this scenario.

The documents you need to complete the succeeding tasks can be accessed through the following links:

Project Charter version 2 (.pdf)

Project Plan version 2 (.pdf)

Project Gantt Chart version 2 (.mpp)

Project Gantt Chart version 2 (.pdf)

[Project Network Diagram version 2 \(.pdf\)](#)

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(username: cstclearner password: CstcPty@123)
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Note: These documents were generated in year 2016. For the purpose of this assessment, refer to ‘2016’ as the current year and ‘2017’ as the succeeding year.

1. List the three (3) project deliverables in Phase 1.

- a. Removal of vegetation in areas being cleared and replanting plants for replanting in stage 3
- b. Access roads through the existing forest for builders to access each building site
- c. Retaining walls to be built including the 3 additional walls

2. Discuss the project constraints in terms of scope, time, cost, and quality.

Scope	This can be found in section 2 of the project plan. This includes all 3 phases and the project deliverables.
Time	All work needs to be completed in 9 months this includes all the building work. Further detail of time lines can be found in the Gantt chart.
Cost	The fixed budget is \$550000 +GST. The budget includes everything required to complete the project on time in accordance with the scope.
Quality	The natural environment is to be preserved. Therefore the Quality of the work must follow the councils strict guidelines.

3. Review the project schedule as set out in the Project Plan and the Gantt Chart Arrange the following tasks in the proper sequence as dictated in Phase 3 of the critical path.

Write 1 – 12 in the spaces provided; where 1 go first and 12 go last.

Write 1 – 12 in the spaces provided; where 1 go first and 12 go last.

8	Remove weeds
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

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

The Project cost was \$444 253 + GST.

New Project cost is \$462 153 +GST.

So the increase is \$17 900 + GST

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

- Environmental issues such as erosion and Subsidence
- Excavation for services to site like power and water
- Excavation for septic and sewer
- Maintaining the plants removed from stage one
- Septic system infrastructure

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

Do not exceed 50 words.

No it does not. Most of the points have been covered The change register (appendix 37) has not been updated. The stakeholders have to sign off the change request (appendix 38).

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

The total budget is \$462 153 + GST. This includes the change request.

17. Sam is very concerned about the cash flow of the project.

- What is the problem?
- What would you suggest be done to rectify the cash flow issue?

- a. Awesome Landscape could spend up to \$224 724 prior to their first initial project payment. This first payment is due on October 1. As per Appendix 8 The total expenditure buy then will be \$248 671. This would leave awesome landscape with a deficit of \$23 947.
- b. This could be solved with a change to the payment dates. Payment 1 and 2 are close together. 1 October and 29 October. The project starts on the 22 of July. If payment 1 was brought forward would eliminate all cash flow problems for the project.

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: <i>Cascade Peak Chalets Landscaping Project</i>		
Prepared by: Patrick Dangelmayer		
18-2-21		
Project Manager: <i>Sam Ng, Awesome Landscapes</i>		
Project Phase:	Overall Project Status:	
Audit Date:	Audit Number:	Audit Leader:
Audit Team:		
Goal(s) of This Specific Audit: To evaluate the financial process at various points in the project.		
Audit of Management of Project:		
1. Are invoices being checked against original quotes and being paid on time?	Assessment:	Comment:
2. Are Payments being received on time as per the payment calendar ?	Assessment:	Comment:
3 Have Cashflow deficit problems been identified and adjusted due to the change in scope ?	Assessment:	Comment:

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9.	Have all financial changes been reported and approved correctly to the required stakeholders?	Assessment:	Comment:			
Overall Assessment of Management of Project:						
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:
- What was the cause of the unsatisfactory results?
 - What action would you recommend to prevent the issue coming up again in this project?

- a. As per the assessment. It states that tasks being communicated to the supervisor do not have the level of detail required by the site supervisor. Detailed plans are not being provided with the task briefs. Some delays in commencing tasks have been experienced as the site supervisor waits for clarification from the project manager.
- b. Sam Ng is to prepare task briefs with enough time to add the required detail along with detailed plans. Sam Ng should hold weekly face to face meetings to ensure all site supervisors have their required information.

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:
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:					
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	☒ x	☐ n o
Audit Report Submitted To: Kim Nguyen					Date: 24/08/2015		

Cost Management Plan

Meeting with contractual requirements.

Massive Eco development is paying a fixed sum off \$550 000. The Project budget as per this project plan is \$462 153.

This figure is to finance the whole project start to finish. Management will need to monitor the progress and project milestones as outlined in clause 3.2 . There is no allowance for delays so it is important that all staff know these dates.

Invoicing.

Paying invoices on time.

The contract administrator is responsible for advising the project manager and payroll officer of invoices that need to be paid. The administrator is to create an easy to use spreadsheet with receivable date and payment date to make sure all invoices are paid on time .

Raising invoices and cashflow

Awesome landscape will raise an invoice on the first working day after the due date of each progress payment. The terms of invoices are 28 days. All cashflow calculations are based on the funds being paid on the last day on the invoice. The project manager is responsible for all invoices going out on time to avoid delays in payment and asset with any cashflow deficit problems.

Funding payments from Massive Eco development Pareto be due as follows and adhered to in order to control cashflow deficit.

Start. Phase 1	1 October 2016.	Payment 1.	50%.	\$275 000. +GST = \$302 500
Finish Phase 1	1 October 2016.	Payment 2	20%.	\$110 000. +GST = \$121 000
Finish Phase 2	1 February 2017	Payment 3.	20 %.	\$110 000. +GST = \$121 000
Finish Phase3.	1 April 2017.	Payment 4	10%.	\$55 000. +GST = \$60 500
		Total	100%	\$550 000 +GST = 605 000

Financial Reporting

A Financial report must be completed monthly by Awesome Landscapes management or immediately after a change request has been completed. If a month passes following a change request or previous report. Another report needs

