Assessment item 2—Individual case study

Due date:	1:00pm AEST, Thursday, Week 11	**ASSESSMENT**
	All students are to submit electronically – max file size is 2Mb.	
Weighting:	35%	
Length:	No set length	**2**

Introduction and Student Guide

This assessment item is to be completed individually.

The case study simulates a project management scenario where the student takes on the role of project manager. The case information is not complete so where necessary students will have to make assumptions and/or seek clarification from their tutor/lecturer.

To assist students in their solution development the following information is provided:

- Product development case description
- Specific assessment questions that must be answered
- Information regarding the submission of the assessment
- Marking guide

Case Description – Rockstone Water Meters

Background

Rockstone is a city located approximately one thousand kilometres north of the State capital. It has a population of approximately one hundred thousand, with forty thousand ratepayers. Running through this tropical city is a river, which conveniently allows the city to be split into two - South Rockstone and North Rockstone.

Like all other councils in the State, Rockstone City Council operates under a State Government Local Government Act. The State Government has been concerned for some time about water usage and has recently passed legislation requiring councils to introduce water meters at every ratepayer's premises. Some councils in Queensland have already introduced water meters, but others such as Rockstone City Council had not worried about the matter as they had an ample supply of water. Nevertheless, to comply with the new legislation, Council is now required to introduce water meters.

By coincidence, Rockstone City Council has recently appointed a new CEO (Mr. V R Y Bright). He is from the new school that believes that not only should the Council have a strategic plan, but also that information technology should form an important part of the implementation of the strategic plan.

The information technology manager (Ian M Whiz) is happy about this. He knows that the current revenue system is getting old and the staff who originally implemented the system have long since gone. The system is so antiquated, and has had so many software patches made over the years, that it now resembles a patchwork quilt. The documentation for the current system is also well out of date. Whiz has been budgeting for the replacement of the system for a number of years.

At a recent Council meeting Mr. V R Y Bright briefed the Council on the State Government requirements to introduce water meters and also on the need to adopt a new Information Technology strategy. Council decided to set up a strategic committee under the chairmanship of the mayor to determine an appropriate strategy and to develop policies and plans to introduce the strategy. As well as representative Councillors, senior Council executives were members of the committee.

The Project

The committee deliberated for some eight weeks before deciding to recommend to Council the adoption of an Information Technology strategy. The committee recommended that all new systems would be installed on a server that used an Open Source Operating System; also that all systems should use database technology that provided for Web Interfaces. The committee also decided to recommend that an investigation be carried out into the implementation of a new revenue system. This new system would need to provide for all functions of the old system as well as new functions including the introduction of water meters.

Council met some two weeks later. Whiz was particularly happy when Mr. Bright rang through with the news that Council had accepted the recommendations of the strategy committee. It was decided to advertise outside Council for a person to manage the project. Mr. Bright arranged for an advertisement to be placed in the local newspapers one fortnight after the Council's decision. It took six weeks to review the applications and conduct the interviews. Shirley Church was appointed to the position. Shirley had considerable experience with project management and database systems, but was not familiar with water meters.

Shirley took up her appointment two weeks later. She formed a project group consisting of users and information technology staff. One of her initial problems was that most of these persons had little experience with database technology. She knew it would be necessary for her to make sure that she concentrated on her role as project manager. She also realised that she should not get too bogged down in analysis and other detailed aspects of the project. Drawing on her contacts that she had in the information technology industry, Shirley arranged for a week long training course to give staff an overview of database technology. This was arranged to start two weeks after she took up the position.

Whiz was requested to investigate portable data entry technology that could be used by meter readers to record the water meter readings as they were read. He contacted some colleagues whom he had met at local government conferences who were able to give some up-to-date information on suppliers of this technology. They also supplied a copy of the specification that they had used for the introduction of their water meters.

At the same time, Shirley consulted the Council engineering department concerning the acquisition and installation of the water meters. It was found that there were suitable suppliers within the State.

Whiz checked with his engineering colleagues on the serial number format that they were intending to use and the size number required for the meter reading. A location code system was also agreed upon, so that meter readers would know where the meters were located at a particular ratepayer's property. Other features such as "Warning dog" were also provided for inclusion.

Based on the team's previous work, Whiz estimated that the preparation of the specification for the supply, delivery, installation and setting to work of portable data entry system would take two weeks to prepare. Whiz also felt it would be desirable to advertise the tender at least twice, one week apart. Further, his enquiries revealed that it would be advisable to leave the tender open for three weeks and allow two weeks to evaluate the tenders. Whiz's experience with Council told him to allow a further three weeks for Council approval. One day was to be allowed for the installation of the software on the personal computer that was required as an integral part of the system. The software was to enable uploading and downloading of data necessary for the readings.

At the same time, the engineering group made similar enquiries about the supply, delivery and installation of the water meters. The engineers estimated that the required specification would take four weeks to prepare.

A condition of the specification was that the successful contractor must have forty people available for the installation of the water meters. Note that all the water meters must be installed before the new revenue system goes live. It was also thought advisable to advertise the tender twice, on the same basis as Whiz proposed for the portable data entry system. However, the engineering group decided that their tender should be left open for five weeks. They expected the evaluation of the tenders to take three weeks and approval from Council another three weeks. From the evaluation, the engineers estimated that each employee of the successful tenderer would be able to install five water meters per day.

In the meantime, following the initial staff training on the overview of database technology, the project group deliberated for two weeks on aspects of the existing system. They identified those parts that were functionally good and other parts that needed improvement. A further two weeks were spent considering functions that were desirable but which were not provided in the present system. During this period, the group also selected two user representatives and one information technology staff member to visit three other local government councils who had recently upgraded their systems. These councils were carefully selected, as one had recently upgraded their system, whilst another had installed a package and then had it customised to meet their requirements.

As a result of the site visits, the group identified features that would be highly desirable in a new system. In addition, they realised that their existing data would not be suitable for straight conversion in to the database. This was because current names and addresses were free formatted whereas it seemed desirable for these to be in a fixed format. In addition they realised the desirability of the data being normalised within the database.

On the basis of the above investigation, the group decided that the best approach would be to go for a package and then customise. The specification was prepared and tenders called. Some other new features included in the specification were:

1. The ability to group water assessments for administrative purposes.
2. Within each of these groups, the ability to gather assessments for meter reading purposes, and specify the route to be taken when the water meters were being read. Provision was also to be made for alteration of that sequence in the future.
3. A facility to provide Council with a future option of issuing accounts quarterly instead of six monthly, thereby providing for an improved cash flow.
4. The establishment of multiple branches or agencies to conduct business on behalf of the Council.
5. The ability for ratepayers to pay their assessment notices at any Council branch or agency, or over the Internet through BPay.
6. The accounts for water charges to be issued on the existing basis or by readings.

The analysis also revealed that it would be better to purchase a new server with a faster cycle speed, more memory and disk capacity.

It was estimated that it would take eight weeks to prepare the specifications for the hardware and software, call for tenders, evaluate tenders and obtain council approval. However, a further two weeks would also be required to obtain State Ministerial approval.

The delivery period for the new hardware (i.e. the server) was eight weeks. Three weeks were allowed to carry out installation matters such as relocation of existing equipment within the computer room, electrical modifications, installation of the new operating system, installation of the database software and the like.

Under the old system, it was not possible to have a single enquiry list of all the rate assessment notices for a ratepayer. Accordingly, Shirley arranged the formation of a data integrity team of 4 staff. The team concentrated particularly on areas where it was felt that there might be more than one assessment notice for a ratepayer. In addition, it checked the accuracy of ratepayers' names having regard to electoral rolls. The accuracy of addresses was also checked as the new system provided for a master list of street names to be established. If the street name were not present in that list, then the address would be rejected. The group also had to determine the routing arrangements for obtaining the water meter readings. The data integrity

group estimated that their work would take sixteen weeks. The data integrity team was to commence work on their task after their initial database training course (as discussed earlier, this was conducted 2 weeks after Shirley's appointment). The coding for the conversion programs (below) could not commence until the data integrity team completed their task.

In addition to installing the operating system and database, the successful software house was also responsible for the conversion of the data contained in the old system into the new database. It was necessary to prepare three programs for this purpose:

Conversion Program A: 3 weeks for coding, 1 week for testing.
Conversion Program B: 5 weeks for coding, 2 weeks for testing.
Conversion Program C: 4 weeks for coding, 1 week for testing.

Work on the development of the conversion programs could not commence until the operating system and database were installed on the new server. Program B could not be tested until Program A had been tested and the conversion of Program C could not be commenced until Program B had finished being tested.

As noted previously, the package purchased was required to be customised, particularly in the area of reports and setting up of database queries. The following timings were estimated:

Report Program X:	2 weeks
Report Program Y:	3 weeks
Report Program Z:	1 week
Queries:	2 weeks

Assume that work could not commence on the customised reporting programs until testing was complete for all the conversion programs (A, B and C).

The Council decided that it wanted the ratepayers to be aware of the introduction of the new system, particularly the introduction of water meters. Accordingly, it arranged for an advertising agency to carry out the following:

Telecom hot line installation – allow 1 day to complete. To be completed 2 weeks before "systems go"
Brochures design/print – allow 8 weeks to complete. To be completed 6 weeks before "systems go"
Newspaper art work. - allow 2 weeks to complete. To be completed to allow insertion in newspaper 4 weeks before "systems go".

Assumptions

Assume that the project commences with the appointment of the Council strategic committee and that this date is 1st July 2013. Assume there are no public holidays between July and late December, but from 25 December until end January 2014 (31/1/14) all staff will be on annual leave. Project staff will normally work five (5) days per week, eight (8) hours per day. The software house has four staff available for the project. You must also allocate the contractor resources to the tasks on your schedule as part of this assignment.

Part A Requirements and Questions

For part A of the assessment you must complete the following tasks and questions. Read all the questions before you commence the tasks. The schedule is to be developed in an appropriately named Microsoft Project 2010 file (e.g. WaterMeters-PartA.mpp) and the questions are to be answered in a Word document. Any assumptions must also be listed at the beginning of the Word document.

1. Based on the information in the case study description above, use the Microsoft Project 2010 software to produce a Part A project schedule. You should be mindful of the marking criteria and ensure that activities described in the case are included and sequenced correctly with all resource and

duration information. Any resource over-allocation issues must be resolved in your schedule without the addition of extra resources. The schedule is to show all activities from 1/7/13 until the system "goes live". You should organise your tasks into key work packages (summary tasks) with sub-tasks (and sub-summary tasks etc.).

One way to organise the WBS is according to the following summary tasks:

Rockstone Water Meters

Pre Project Manager Appointment Tasks (committee deliberaation and PM appointment etc.)

:

DataBase Training (arrangement and actual training)

:

Portable Data Entry system

:

Water Meters

:

Revenue System

:

Awareness Campaign

:

Although there are other possible structures for the WBS, for this assignment you are required to base your WBS on the above starting point. Note that some of the summary tasks shown above may have sub-summary tasks. For example, the "revenue system" should include sub-summary tasks such as "Conversion program A" etc.

2. In this question you must identify the critical path in your schedule.
   i. Make sure that the tasks on the critical path are automatically highlighted by the software in the Gantt chart view.
   ii. List the tasks on the critical path in your answer to this question in the Word document.

3. Based on your schedule, when should the specifications be issued for the portable data entry system and the water meters? Manually highlight the tasks involved using the "background colour" icon on the task ribbon. This is to allow your marker to check your work easily

4. Assume that you are Shirley, write a memo to Mr. Bright explaining the expected completion date of the project, together with an explanation of the factors that cause the project to require that length of time.

5. Capture screenshots of the "Who does what" report that shows the tasks each resource is involved in and when they are scheduled to work on that particular task. Add the screenshots to the Word document in answer to this question.

6. How should Shirley ensure that the project is finished on time as determined by the project schedule developed?

7. What options does Shirley have to shorten the project? (Justify your answer. Be specific. Describe any tasks that you would target, how you might reduce their duration and how/why a reduction in their duration would impact on the project completion date. Give at least **two** suggestions and describe any impact or issued that might result from implementing your suggestions.)

8. Shirley is also asked to develop a risk plan for the project. Describe how the risk plan should be used and what information must be included in the risk plan.

9. Are there any activities and/or events that Shirley has overlooked? (This could include additional tasks/planning that should be carried out by the project manager. Do **not** include any missing tasks that you identify in this question in your solution .mpp files.) If so, describe those activities. What impact will these have on the project if Shirley does not take action to rectify the situation?

Part B Requirements and Questions

During the lead-time, the vendors advised Shirley that there was a delay in shipments and that the new hardware delivery would be ten weeks from the original receipt of the order.

The data integrity group also found that the process was more time consuming than expected. When the data integrity group of four was half way through the previously estimated checking period, they had only completed one quarter of the work.

1. Should Shirley simply proceed with lengthening the time for ensuring data integrity? Explain your answer and discuss any options that she should consider before making her decision.
2. Copy your Part A schedule into a new Part B file and amend the schedule according to the new information given above (i.e. assume that the shipment will be delayed and that ensuring data integrity will take longer). Manually highlight the rows where you have made changes using the "background colour" icon on the task ribbon. This is to allow your marker to locate them easily. Document any assumptions you make in Part B in the Word document. If the changes create any resource over-allocation issues make sure that you resolve them.
3. What is the new time for the critical path? In your answer include the new date of completion, new duration and compare the new schedule with the original schedule (e.g. how much longer or shorter is the new schedule in comparison with part A).
4. Describe how each of the changes impact upon the project schedule.
5. What effect does each of the changes have on the cost of the project?

Submission of Assessment

The assignment is to be submitted as 3 separate files using the electronic assignment submission system that can be accessed from the link on the course website. The three files to be submitted are as follows:

1. The Word document with the assumptions and answers to the questions for Part A and Part B.
2. The two Microsoft project files created for Part A and Part B. Please ensure that the names of these files clearly indicate their purpose, e.g. WaterMeters_Part_A.mpp and WaterMeters_Part_B.mpp

Marking Guide for Assessment item 2 – Individual Case Study

Assignment Question	Criteria	Marks available	Marks awarded
Part A			
Assumptions			
Q1	The adequacy of the project schedule. Includes: • Tasks + WBS + summary tasks • Durations/effort • Resources (+ any issues resolved) • Predecessor relationships • holidays	8	
Q2	Critical path (highlighted and tasks listed)	1	
Q3	Correct dates	1	
Q4	Appropriateness of the Written Memo – includes all details required	3	
Q5	Screenshot of "who does what" report	1	
Q6	Ensuring completed on time	4	
Q7	Details on shortening the Project	3	
Q8	Discussion of risk plan.	3	
Q9	Missing activities	2	
Sub Total Part A		**26**	
Part B			
Q1	Discussion of whether or not to lengthen task duration.	2	
Q2	The adequacy of the amended schedule	2	
Q3	The new critical path duration (and finish date) + compared to part A.	1	
Q4	Description of impacts of each of the changes on the schedule.	2	
Q5	Impact of each of the changes on the cost.	2	
Sub Total Part B		**9**	
TOTAL		**35**	

Comments:

Lecturer: _____ **Lecturer's signature:** _____

Date: / /