Assessment item 2—Group case study

Due Dates: See Moodle for the exact date and time for the submissions listed below.

Individual submissions:

Sub-deliverable 1: End of week 6
Sub-deliverable 2: End of week 7 (plus first compulsory peer assessment due)
Sub-deliverable 3: End of week 8 (plus second compulsory peer assessment due)
Sub-deliverable 4: End of week 9
Sub-deliverable 5: End of week 10

Final Group Submission: End of week 11 (plus final compulsory peer assessment due)

Contents

1 Overview

This case study simulates a project management scenario where the student takes on the role of project manager. Students are required to use Microsoft project management software as part of this assessment task.

This is a **group** assignment with a maximum of **three** members per group. However, note that all members are also expected to attempt all parts of the assignment individually as assessment item sub-deliverables 1- 5. Members of the group are required to submit their own individual attempt for each of the sub-deliverables in Moodle before the group meets to consolidate answers to produce the "group solution". **There are separate submission areas and due dates for the individual submissions**. On time submission of the 5 sub-deliverables is worth a total of 5 marks, but these submissions may also be used to assess individual contributions and may impact on a student's final mark.

Groups must meet at least once a week to produce the "group solution" for the work scheduled for completion in that week. This solution should then be added to the developing final group solution.

It is also important to meet early in **week 10** to produce the updated schedule to be used to complete the Part C questions and status report. Each group is responsible for providing their own status data. This means that the group members must collaborate on this and ensure that all members are working with the same GD_PartC.mpp file when completing the Part C questions. This is explained further in part C.

There is **one final group solution** to be submitted at the end of the assignment. It is worth 35 marks and is to be submitted by **only one member of the group**. The names and student ids of all members of the group must appear clearly on the coversheet of the final assessment submission.

Peer assessment and your individual submissions will also be used to assess group member contributions. If any member of a team is not contributing satisfactorily to the group then he/she may have marks adjusted and/or be asked to leave the group and be required to complete the assignment as an individual.

If you are having difficulties within your group you must alert your tutor/lecturer as early as possible.

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

- A product development case description.
- Specific assessment questions that must be answered.
- Information regarding the submission of the assessment.
- Marking criteria.

Where necessary, students are expected to find relevant information in the academic literature to justify their answers. Students may have to make assumptions and argue the pros and cons for any recommendations that they make. Any assumptions made must be clearly documented in the answers.

2 The Case Study

2.1 Background

Great Devices is a medium sized company that develops and manufactures medical devices. You are an employee of Great Devices and work as project manager in the product development department. The people involved in this case study are:

- You (Mr. Kennedy), the project manager.
- Ms. Thurlings, the Director of Product Development.
- Ms. Douglas, the Director of Marketing and Portfolio Management.
- Ms. Yang, the Human Resource Manager.
- Functional line managers in the research and development department (Mr. Software, Mr. Mechanics, Mr. Electronics, Mr. Production and Mr. Validation).
- Engineers and members of your project team.

You have been leading a small team of experienced engineers conducting a technical feasibility study to investigate if it is possible to modify one of the company's standard products to create a product variant to satisfy the needs of veterinarians. You are planning to hold an M1 Milestone Concept Review on Friday the 20th May 2016. (For the purposes of this assignment assume that this is next week.) Assume that the start date of the project will therefore be Monday 23rd May 2016 and that this is the date for the M1 milestone.The project management milestone concept review checklist is provided as Appendix 1. The concept review is one of the milestones in the company's product development process.

The need for the new product has been identified by the marketing department lead by Ms. Douglas, Director of Marketing and Portfolio Management. Ms. Douglas provided your small project team with a product brief, outlining the special end user, sales and service requirements to supplement the requirements already established for the standard product. She also developed the business case for the product.
Your team have come up with a unique novel product concept that you believe should be protected by a patent. The concept satisfies the need perfectly. The feasibility work carried out with a user focus group showed that the user requirements were sound and that the technical complexity of the development was medium to low.

2.2 Milestones

The milestones your team will use are:
  A. M1 Concept review (At this point the system architecture and feasibility study will be complete. A go/no-go decision for detailed design will be made at this milestone, i.e. at the end of the concept review meeting).
  B. M2 Design review complete (At this point the overall design will be complete. A go/no-go decision for procurement will be made at this milestone).
  C. P1 prototype 1 build to start (After an internal project review confirming that the product prototype is able to be manufactured with the quality level expected.).
  D. P2 prototype 2 build to start (After an internal project review confirming that the product prototype is able to be manufactured with the quality level expected).
  E. M3 Final Product review complete (At this point the product quality is verified based on the product validation testing carried out on the last prototype. A go/no-go decision for production ramp-up is made. If a "go decision is made" 2000 devices should then be produced ready for market.)
  F. M4 Launch review complete (A go/no-go decision depending if all business areas are ready for market launch and 2000 devices are in stock. M4 milestone is the end of the project).

2.3 Initial Data

The system architecture of the product has been used as the basis for the project organisation and the work breakdown structure. As the project manager you have accepted the tasks of creating the compiled project schedule and allocating resources.

You have obtained the following information:

1. A work break down structure (WBS), resource estimates and some dependencies summarised in Table 1 below.
2. Mr. Production provided information about the prototype builds. His input is summarized in the Activity-In-the-Box (AIB) network diagrams in Figure 1.

Note that the following resource abbreviations are used:
- Electronic Engineer (EE)
- Software Engineer (SE)
- Mechanical Engineer (ME)
- Test Engineer (TE)
- Production Engineer (PE)
- Technical writer (TW)
- Printed Wire Board (circuit board) (PWB)
- Electromagnetic Compliance (EMC)

Table 1- Work Breakdown Structure

Activity	Description	Predecessor(s)	Resource and duration Estimates (in person-weeks)	To be completed before the review prior to milestone
1. Electronics				
1.1 PWB outline modifications	Modifications required in existing product for new product	M1	1 person-week of EE.	
1.2 Component selection	Selection of electronic components. Should be started together with 1.3.	1.1	2 person-weeks of EE.	M2
1.3 P1 circuit design and PWB layout	Creation of circuit diagram and PWB layout. Breadboard solution created. Should be started together with 1.2.	1.1	2 person-weeks of EE.	M2
1.4 P1 electronics verification tests	Electronic verification tests with the use of the P1 prototypes.	1.3, P1 build complete (5.5)	2 person-week of EE.	
1.5 P2 circuit design improvements	Electronic improvements to circuit diagram, component selection and layout.	1.4	1 person-week of EE.	P2
1.6 P2 electronics verification tests	Electronic verification tests with the use of the P2 prototypes.	1.5, P2 build complete (6.5)	2 person-weeks of one EE.	M3
1.7 Thermal verification tests	Verification that electronic heat generation and heat transmission through covers is acceptable.	1.5 , P2 build complete (6.5)	1 person-week of EE.	
1.8 EMC verification tests	Verification of compliance with electromagnetic compliance regulations.	1.7	1 person-week of EE.	M3
2. Software				

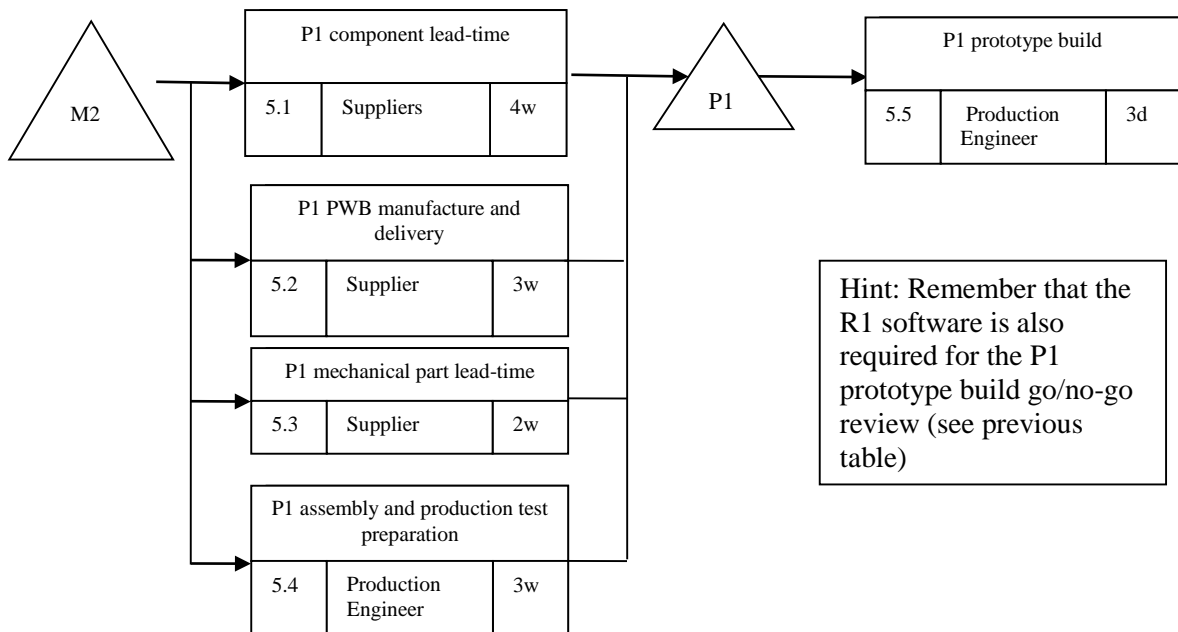|				
2.1 Software specification	Specification of the software functionality based on user requirements.	M1	3 person-week of SE.	
2.2 Software and database design	Design software and database	2.1	3 person-weeks of SE	M2
2.3 User interface development	Software additions due to modified menus and functional keys.	M2,2.2	1 person-week of SE.	
2.4 Database development	Software additions to the device database.	M2, 2.2	1 person-week of SE.	
2.5 Development of device to PC interface	Software additions to the communication protocol between the device and the PC.	M2, 2.2	1 person-week of SE.	
2.6 Development of PC software	Software additions/modifications to the PC software functionality to support the new device functionality.	2.4,2.2	2 person-weeks of SE.	
2.7 R1 release creation	Creation of the R1 (release 1) software for testing	2.3, 2.4, 2.5,2.6	3 person-days of one SE.	
2.8 R1 release tests	Testing of the R1 release and identification of errors.	2.7	1 person-week of SE.	
2.9 R1 error correction and user interface improvements	Creation of the R1 software release to be used with the P1 prototype.	2.8	1 person-week of SE.	P1
2.10 R1 testing with prototype 1	Testing of the R1 software with the first prototype	Prototype 1 build complete (5.5), 2.9	1 person-week of SE	
2.11 Documentation	Development of user and technical documentation manuals	2.10	4 person-weeks of TW	
2.12 R2 modifications	Modifications to the software after testing with prototype 1	2.10	1 person-week of SE	
2.13 R2 release creation	Creation of the R2 software release to be used with the P2 prototype.	2.12	2 person-days of SE.	P2
2.14 R2 release tests with prototype 2	Testing of the R2 release with prototype 2 and identification of errors.	2.13, Prototype build 2 complete (6.5)	1 person-week of SE.	
2.15 R2 error corrections	Correction of errors	2.14	1 person-week of SE.	
2.16 R2 interoperability tests	Testing of interoperability with 3rd party accessory devices.	2.15	1 person-week of SE.	
2.17 R2 interoperability error correction	R2 interoperability error correction	2.16	1 person-week of SE.	
2.18 Finalise documentation	Finalise documentation including interoperability information	2.16, 2.11	1 person-week of TW	
2.19 R3 release creation	Creation of the R3 software release.	2.17	2 person-days of one SE.	
2.20 R3 tests and corrections	Testing (and correcting) of the R3 release	2.19	1 person-week of SE.	
2.21 R4 sales release creation	Creation of the R4 software sales release	2.18,2.20	3 person-days of SE.	M3
3. Mechanics				
3.1 Industrial design	Design of the industrial design for the device.	M1	3 person-weeks of ME/industrial designer.	M2
3.2 PWB outline modifications	Modifications of the PWB to fit the industrial design, new components and usability requirements.	3.1	1 person-week of ME.	

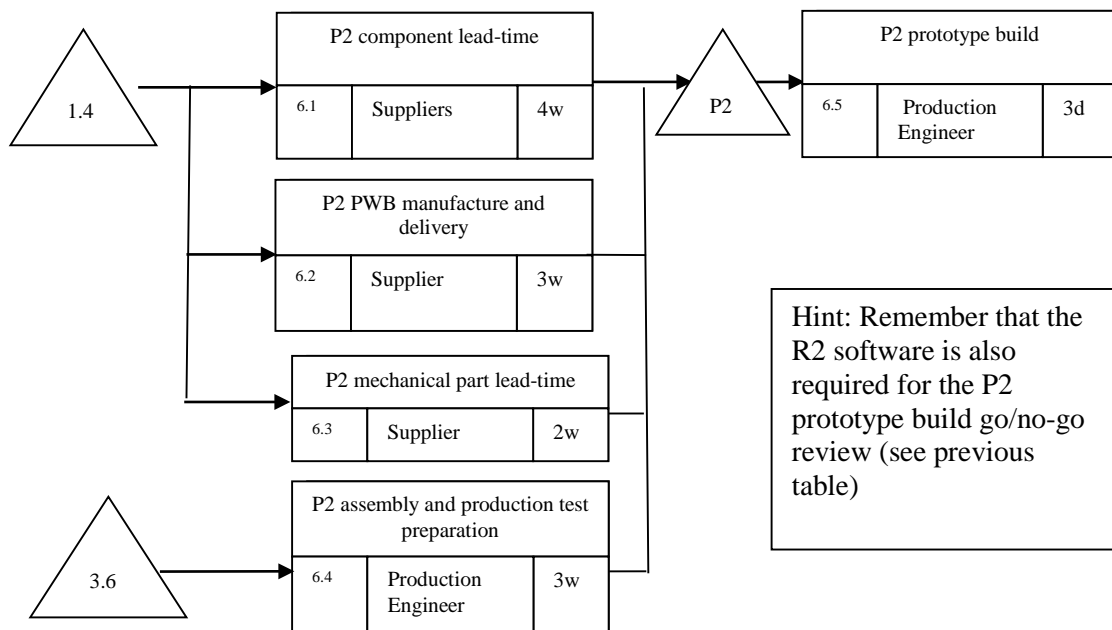|				
3.3 P1 mechanical CAD design	CAD design of mechanical plastic parts and metal parts for the device.	3.2	3 person-weeks of ME.	
3.4 Tolerance stack analysis	Analysis of the mechanical tolerance stacks compared to part tooling and moulding capabilities.	3.3	1 person-week of ME.	M2
3.5 P1 mechanical part analysis	Physical analysis of moulded plastic parts and sheet metal parts.	P1 build complete (5.5)	1 person-week of ME.	
3.6 P2 mechanical part modifications	Modification of moulding and sheet metal tools used for P2 parts.	3.5	2 person-weeks of ME.	P2
3.7 Mechanical tool approval	Evaluation of P2 mechanical parts and approval of moulding and sheet metal tools used in part manufacture.	P2 build complete (6.5)	3 person-weeks of ME.	M3
4. Verification				
4.1 Test plan creation	Creation of a plan documenting what is to be tested.	M1	1 person-week of TE.	M2
4.2 Component tests	Test of key component reliability to various standard tests like drop and humidity.	After delivery of components (for P1 – i.e. 5.1) , 4.1	1 person-week of TE	
4.3 Module tests	Test of module functionality after assembly.	P1 build complete (5.5), 4.2	1 person-week of TE.	
4.4 System integration tests	Test of integration of modules.	4.3	2 person-weeks of TE.	P2
4.5 Product validation tests	Test of "final/prototype 2" product against reliability to various standard tests like drop and humidity and end user requirements.	4.4, P2 build complete(6.5)	2 person-weeks of TE	
4.6 Technical Construction File compilation	Creation of documentation for regulatory approvals.	4.5	1 person-week of TE.	
4.7 Type approval and regulatory approval tests	Approvals from regulatory authorities.	4.6	4 weeks by the regulatory authorities (not one of the project team resources). This is a "Fixed duration" specified by the regulatory authorities..	M3

Notes:

1. One "person-week" is a "unit of work" representing the work done by one person in one week. It means that the task will normally take one person one week to complete. Note that you can assume that a week refers to a normal working week of 5 days (Mon-Fri) with people working 8 hours per day. This is the default in Microsoft Project. Unless otherwise stated you can also assume a linear relationship, i.e. 3 person-weeks will take one person 3 weeks or 3 people one week. Note that this is not necessarily the case in practice. Refer to the discussion of the "mythical man-month" in your text book (Brooks' law, chapter 9). In addition, some tasks will be a fixed duration (e.g. delivery times).

2. For the purposes of this assignment (to reduce variability in solutions and complications for the markers) build your Part A1 schedule by assuming that you allocate one resource (i.e. one person with the required skills) to each task. In that case, if the task required 3 person-weeks of an EE you would assign one EE to the task and give it a duration of 3 weeks.

3. Assume that before each milestone is reached, an internal review has been completed and a go/no-go decision has been made. Allow one day for each review to make the "go/no-go" decision after all the "milestone review" predecessors are complete. All the "milestone review predecessors" must be complete before the 1 day for the "go/no-go" review decision.

4. The last column in the table titled " To be completed before the review prior to milestone" indicates where a task is a predecessor of the one day "milestone go/no-go review". For example, task 1.2 is one of the predecessors that must be completed before the M2 review. The "M2 review" should take one day and is the predecessor of the M2 milestone (when the milestone is reached it means a decision has been made) . For the purposes of this assignment, you are not required to add resources to these "review" tasks. You can assume the reviews and go/no-go decisions are carried out by management.

5. For the purposes of this assignment, add a "Milestone Reviews" summary task after the last task (which should be "Production of 2000 devices"). The "Milestone Review" should be out-dented at the same level as the Electronics summary task. The "Milestone Reviews" summary task is to be followed by the indented list of "one day milestone reviews" for M2 to M4. The start date of the project followed the M1 concept review.

6. Add a "Milestones" summary task after the reviews. The Milestones summary task should be out-dented at the same level as the Electronics summary task. This summary task should have the milestones M1, M2, P1, P2, M3 and M4 indented underneath it. Note that the milestones should be the last items on the "task list" for your schedule.

Figure 1 - Activity in Box Network Diagrams for Production

Hint: Remember that the R1 software is also required for the P1 prototype build go/no-go review (see previous table)

Notes:

1. The resource and duration information on the diagram indicate how long the task will take given one person (with the appropriate skills) assigned to the task. For example, 6.4 will take one Production Engineer 3 weeks to complete. Similarly 6.5 will take one Production Engineer 3 days.

2. Delivery times are "fixed durations", i.e. additional resources will not impact on the delivery times. Suppliers should not be included as resources in your project. Tasks like 5.1 should not have resources allocated to them in this assignment.

In addition to the work breakdown structure and AIB network diagram you have collected the following information.

- The project booking of the proto builds (task 5.5 and 6.5) will have to be done at the latest three (3) weeks in advance of the build. This is the lead time required to include builds in the manufacturing's master production schedule.

- The initial lead time for the display component is six (6) weeks and therefore longer than for the rest of the components. Although 5.1 above has 4 weeks lead time, your schedule will have to use 6 weeks lead time to allow for this display component. Assume that this is not an issue for 6.1.

- The company has a general holiday period between 26/12/16 to 30/12/16 and Monday 2/1/17 will be a public holiday. In addition, there is an October public holiday on 3/10/16 that must also be included in the scheduled holidays.

- The booking of the Type Approval (TA) test house (task 4.7) has to be done 6 weeks prior to type approval.

- Production ramp up to manufacture 2000 devices is estimated to take four (4) weeks after the M3 milestone. Include this task on your schedule task list between the prototype 2 build and the milestone reviews tasks. Assume that as with the prototype builds, this task will require a Production Engineer.

The maximum full time resources available for your project are provided in Table 2.

Table 2 - Available Resources

Resource	$/hour	Number Available
Electronics Engineer	$85.00	2
Software Engineer	$90.00	2
Mechanical Engineer	$95.00	2
Test Engineer	$90.00	1
Production Engineer	$95.00	1
Technical Writer	$80.00	1

The engineers work a 40 hour week from Monday to Friday (i.e. a 5 day week with 8 hour days). The functional managers have assured you that the engineers are able to do all the tasks **within their engineering field (**e.g. there are no differences between the abilities of the two software engineers).

If the project is resourced as requested your team is committed to producing only two prototype iterations to develop and validate the design

You know that there are items that you may not have sufficient information about yet and that you may need to make some assumptions to complete your schedule and budget. Make sure that you list any assumptions you make at the beginning of your assignment submission.

3   Assessment Tasks

3.1 Part A: Developing the schedule

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 2013 file (see the name specified below) and the questions are to be answered in a Word document. As stated above, any assumptions must also be listed at the beginning of the Word document (after the coversheet).

1. Use Microsoft Project to develop the project schedule. **Note** that Ms. Thurlings has also asked you to include the following in your schedule:
   a) The project title as the overall project summary (as task 0 and WBS number 0). All other tasks should be "indented" according to the WBS structure described in the case study (see table 1, figure 1, notes regarding the "ramp up" task, milestones and milestone reviews etc.).
   b) A WBS column before the "Task Name" column and a WBS Predecessors column after the "Task Name" column as shown below:

(task number – no column title)	ⓘ	Task Mode	WBS	Task Name	WBS Predecessors	Duration	Start	Finish	Predecessors	Resource Names

   c) The milestones and milestone reviews at the end of the task list in your schedule. See the notes after table 1 for more details about this requirement. (Note that this is not always a requirement in a project schedule. Milestones can be embedded in the schedule or listed at the start. In this assignment you must add them at the end.)
   d) Resource allocation details.
   e) Holidays.
   f) The critical path(s) automatically displayed in red on the bars of the Gantt chart view of your schedule

   At this point there may be resource over allocation issues. **Do not** attempt to resolve these before answering question 2. **Save this version** of your schedule in **GD_PartAQ1.mpp**. You will be required to submit this file as part of your assignment submission.

2. At this point ignore any resource over allocations. **For the purposes of this question onl**y you can assume that there would be no resource constraints so do not attempt to resolve any resource over allocation (if any exists) at this point. Based on your **GD_PartAQ1.mpp** schedule:
   a) Use the "view tab" filter to display only the critical tasks. Provide a screenshot showing the task names and the Gantt chart of all the tasks on the critical path(s).
   b) Did the annual holidays make any difference to the end date of your project? Explain why/why not.
   c) If you were asked to complete the project 3 weeks earlier by reducing the duration of some of the tasks in the project, what tasks would you target for reduction and why? In your answer, include specific suggestions about how you could reduce the duration of those tasks and why you targeted those specific tasks.
   d) Create a new version of the schedule with the changes you outlined in part (c) highlighted using the "background colour" icon on the task ribbon. Make sure that your changes have reduced the project duration by 3 weeks. Call this file **GD_PartAQ2_shortened.mpp**. You

will be required to submit this file as part of your assignment submission. This file is not to be modified/developed further.

3. Create another copy of your original question 1, **GD_PartAQ1**.mpp in another file called **GD_PartAQ3_resources.mpp**. In this question, unlike question 2, assume that you will not have any additional resources assigned to the project even if there are resource over allocation issues. If your schedule had any resource over-allocation issues resolve these in the GD_PartAQ3_resources.mpp file **without adding any additional resources**. For this assignment, do not "split tasks". **Save this** "modified" version of **GD_PartAQ3_resources.mpp file**. You will be required to submit the **GD_PartAQ3_resources.mpp** file as part of your assignment submission.
    a) Describe how you used (or how you would have used Microsoft Project) to resolve any resource over-allocation issues.
    b) Does the fact that you cannot have any additional resources for this project have any impact on your project duration and end date? Explain.
    c) Does the fact that you cannot have any additional resources for this project have any other impact on your project? Explain.

4. Continue working with **GD_PartAQ3_resources.mpp**. In this file, include 3 additional milestone "markers" **at the end of the milestone list** to highlight
    a) The latest date that the project manager should contact the regulatory authorities to book in regulatory approval tests.
    b) The latest date that the project manager should contact the production manager to book the facilities for the first prototype build.
    c) The latest date that the project manager should contact the production manager to book the facilities for the second prototype build.
    d) What are the last dates for booking the facilities ((a), (b) and (c)) according to your schedule?

Make sure that these new milestones have the appropriate predecessor relationships so that the dates will be automatically adjusted if there is any change to the schedule. On your schedule, highlight the rows that include these milestones. This change is to be saved in your **GD_PartAQ3_resources.mpp** file.

5. Write a memo to the director of product development, Ms. Thurlings, providing the following information:

    a) the expected completion date of the project, assuming it commences on 23/5/16;
    b) the total duration of the project;
    c) an explanation of the main factors that cause the project to require that length of time and any recommendations that you might make if time was a priority for the project;
    d) the estimated **direct labour** costs for each of the resource types working on the project. Present the costs in a table similar to the following:

Resource Name	Cost
Electronics Engineer	
Software Engineer	
Mechanical Engineer	
Test Engineer	
Production Engineer	
Technical Writer	
Total direct labour costs:	

Assume that you will send the project schedule (**GD_PartAQ3_resources.mpp**) as an attachment to the memo. The information in the memo should correspond to the attached schedule. Some notes regarding memos can be found on the course website in the same area as this specification.

3.2 Part B: Modifying the schedule

Mr. Production reviews your project schedule and requests the participation of one engineer from each of the following functional areas in the P1 and P2 builds: production, electronics, software and mechanics. Only the production engineer is required for the final "ramp up" production of 2000 devices. You agree with this proposal.

You are also informed that the Chinese display supplier has been able to revise the delivery time. The delivery time is now reduced to 4 weeks which is corresponds to the time required for the other components.

In addition you have been informed that some additional software features are required in the software. After consultation with the software engineers involved in the original estimates you have been advised that "development of the PC software" and the "user interface development" tasks will both require an additional 1 week of work by a software engineer.

Based on the information given above complete the following tasks:

1. Copy your **GD_PartAQ3_resources.mpp** file into a file called **GD_PartB.mpp** file. Amend the project schedule in your new **GD_PartB.mpp** file incorporating the request from Mr. Production, the change to the delivery time for the display and the new estimated times for the software tasks. If this has created any resource over allocation issues resolve these before progressing to the next question. Save the changes. The **GD_PartB.mpp** file is also to be included as part of your final assignment submission.

2. Have the changes impacted on the duration of your project and if so in what way? Be very precise in your answer. If the project is longer or shorter state the previous finish date the new end date and by how much the project has been shortened or lengthened.

3. Describe the impact of each of these changes on the project duration in a table similar to the following:

Change	Impact on project duration (longer, shorter or no impact)	By how much	Explanation
Addition of resources to prototype 1 and 2 builds			
Change to delivery time of display unit			
Additional time required for user interface development			
Additional time for development of PC software			

Note that if a combination of the changes have had an additional impact that would not have occurred if the change was made in isolation clarify this in your explanation.

4. Describe the impact of each of these changes on the direct labour costs for the project in a table similar to the following:

Change	Impact on direct labour costs (more, less or no impact)	By how much	Explanation
Addition of resources to prototype 1 and 2 builds			
Change to delivery time of display unit			
Additional time required for user interface development			
Additional time for development of PC software			

3.3 Part C: Tracking Progress

In this part of the assignment you are to imagine that your project is underway and that it is time to produce one of your regular status reports.

This means that your group needs to meet together early in week 10 to save the baseline and decide on and enter your status data for the project. Your group needs to enter the data together and make sure that everyone has a copy of the updated mpp file. This is to ensure that everyone is working with the same information when they write their individual attempt at the status report.

The individual sub-deliverable due at the end of week 10 is the group's **GD_PartC.mpp** file plus each students individual attempt at the answers to the Part C questions.
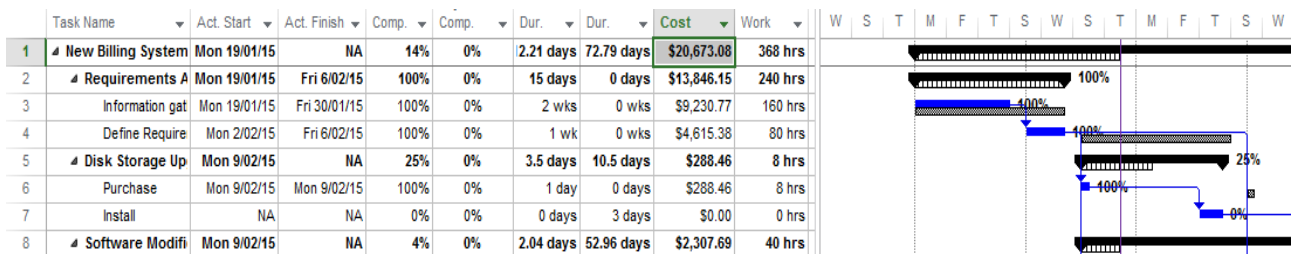
In week 11, you should complete the group version of the Part C answers and include this in your final group submission. All previous "group" answers should already be complete.

1. Copy **GD_PartB.mpp** to **GD_PartC.mpp**. Save the baseline for this version of your project.

2. Assume that you are now at the end of the **fourth week** of your project and that you have data about when tasks actually started, their duration (which must be consistent with the start date and the status date) and the estimated remaining duration. If the task has been 100% completed assume that you know the actual start date and actual finish date. You are required to produce a status report for the project every two weeks, so this will be your second status report. In your **GD_PartC.mpp** file

    a. Set the **status date** to the end of the fourth week **and include** a solid, purple status date **gridline** in your project to ensure that the status date is clearly visible in your Gantt Charts.

    b. Enter some status data. For the purposes of this assignment you are to invent your own data about the status of the various tasks that you would expect to have started at this point in the

project. You are required to enter status data with some variation compared to the baseline so that you can demonstrate an understanding of the earned value data in your status report.

For tasks that should have been started by the status date you are to enter reasonable data about their start date, actual duration (up to the status date), estimated duration remaining (or completion date**). Do not have all tasks starting and finishing exactly according to your original estimates and make sure that your changes do not violate any predecessor constraints.** You are free to enter data to make tasks finish early or late or enter data about the remaining duration that means a task is expected to take either more or less time than originally estimated. It is also acceptable to have some tasks that are tracking according to their original duration estimates, just not all tasks. **Save** your changes in **GD_PartC.mpp and use this file to answer parts c, d and e below.**

c. Include a screenshot of the top of your tracking Gantt chart showing the tracking table and the Tracking Gantt Chart for some of your tasks. For example, if asked to do this for the Microsoft Project practical 4 schedule, you would have included a screenshot similar to the following:

	Task Name	Act. Start	Act. Finish	Comp.	Comp.	Dur.	Dur.	Cost	Work	
1	◢ New Billing System	Mon 19/01/15	NA	14%	0%	2.21 days	72.79 days	$20,673.08	368 hrs	
2	◢ Requirements A	Mon 19/01/15	Fri 6/02/15	100%	0%	15 days	0 days	$13,846.15	240 hrs	
3	Information gat	Mon 19/01/15	Fri 30/01/15	100%	0%	2 wks	0 wks	$9,230.77	160 hrs	
4	Define Require	Mon 2/02/15	Fri 6/02/15	100%	0%	1 wk	0 wks	$4,615.38	80 hrs	
5	◢ Disk Storage Up	Mon 9/02/15	NA	25%	0%	3.5 days	10.5 days	$288.46	8 hrs	
6	Purchase	Mon 9/02/15	Mon 9/02/15	100%	0%	1 day	0 days	$288.46	8 hrs	
7	Install	NA	NA	0%	0%	0 days	3 days	$0.00	0 hrs	
8	◢ Software Modifi	Mon 9/02/15	NA	4%	0%	2.04 days	52.96 days	$2,307.69	40 hrs	

d. Include a screenshot of the top of the earned value table for your GD_PartC.mpp file. You will probably have to add the additional CPI and SPI columns. For example, if asked to do this for the Microsoft Project practical 4 schedule, you would have included a screenshot similar to the following:

	Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	SV	SPI	CV	CPI	EAC	BAC	VAC
1	◢ New Billing System	$18,461.54	$35,673.08	$20,673.08	$17,211.54	1.93	$15,000.00	1.73	$55,756.04	$96,211.54	$40,455.50

e. Based on the current status of your project, you are to produce a status report with a similar format to "exhibit 13.1" in the textbook (the actual template you are to use for the status report is provided as Appendix 2). Detailed explanations for why tasks are not tracking according to their original estimates are not required for this assignment as the data you entered is "fictitious". However, you can suggest reasons for tasks to be tracking better or worse to make your report more realistic if you wish. Even if you do not give specific reasons, you must still flag which tasks are responsible for your project status being better or worse than planned.

3. Although you have ended the Microsoft Project schedule with milestone "M4: the end of the project", you understand that the project is not yet completed (even though the product has been delivered) as you have not yet completed the closing stage of the project

a. What tasks will need to be carried out in this stage of the project and why are they important?
b. How you will motivate the team at this stage in the project and why is motivation likely to be an issue?
c. Is there anything that needs to be done prior to the closing stage to ensure that it runs smoothly?

4. Project changes can influence the schedule and budget of successor tasks in a project and this can also have a large impact on other project stakeholders. What steps could the project manager take to allow a smoother transition of project changes? Provide two specific suggestions in your answer.

3.4 Assumptions

You are free to make any assumptions necessary to complete the assignment. However each assumption must be justified and stated clearly in your assessment word document. Marks will be deducted for any unreasonable assumption or for stating an assumption and then ignoring it in your assignment.

4 Assessment Submissions

This assignment requires **5 individual submissions of the sub-deliverables** online by all members of the group **and one final group submission** of the complete assignment **by one member of the group only** plus **three peer group assessments**. The individual sub-deliverables are to be submitted in weeks 6, 7, 8, 9 and 10. The final group submission is due in week 11. **The exact due dates and times are given on the Moodle course website**. The details of what is to be submitted for each sub-deliverable and for the final group submission are given below.

4.1 Individual submission of sub-deliverables

These are to be submitted by all members of the group as **zip files** in their own submission area on the Moodle course website. Each individual submission has a different due date. The table below provides a summary of what is to be submitted in the zip files.

Sub-deliverable	Week due	Description of zip file contents
1	6	A zip file with your .mpp files saved at the end pf practicals 1, 2 and 3.
2	7	A zip file with the Part A question 1 .mpp file, i.e. **GD_PartAQ1.mpp** **and** your completed **peer assessment form(s)**
3	8	A zip file containing: 1. Word document with answers for Part A 2. **GD_PartAQ2_shortened.mpp** 3. **GD_PartAQ3_resources.mpp** **and** your completed **peer assessment form(s)**
4	9	A zip file containing 1. A Word document with the answers to Part B 2. **GD_PartB.mpp**
5	10	A zip file containing: 1. A Word document with your answers to Part C questions 2. A copy of your group's **GD_PartC.mpp**

4.2 Peer Assessment

The aims of this peer assessment are twofold:
1. to provide information to the markers to help with their assessment of student work
2. to give students feedback to help students to improve their skills when working as part of a team.

In terms of point 2, it is important that the feedback be used in a positive way. It should only include "constructive criticism", i.e. it should:
1. Provide positive feedback so that the team member understands what they are doing that works well.
2. Provide constructive criticism, i.e. advice about how a team member could improve their team work.
3. Be polite and positive.

In terms of point 1, although there are three peer assessments scheduled as part of this assessment item (one in week 7, one in week 8 and one with the final submission in week 11). It is also **important that you alert your tutor as early as possible if you are experiencing problems within your group** (for example, if a team member is not attending meetings or is coming to meetings unprepared).

The first peer assessment is to be submitted with your individual sub-deliverable in week 7. Similarly the second peer assessment is to be submitted with your individual sub-deliverable in week 8.You will be advised later in the term about how/where to submit your final week 11 peer assessment.

The **Peer Assessment Forms** to be completed and submitted in weeks 7 and 8 are available on the course website in the same area as this assignment specification.

4.3 Final Group Submission

The final group solution with the mpp files and assignment answers must be submitted in the electronic submission system on Moodle by **one member** of the group. It is important that only one member of the group submits the work or Turnitin will produce a very high similarity score for your work.

The final group submission is due at the end of week 11 (exact date and time shown in Moodle). Unlike the individual sub-deliverable submissions, this submission area will not accept zip files. The final group submission is to consist of **six individual** files as follows:

1. A Word document with the coversheet/title page (shown below) and the group answers to all the questions in Part A, Part B and Part C.
2. The following group .mpp files:
    a. GD_PartAQ1.mpp
    b. GD_PartAQ2_shortened.mpp
    c. GD_PartAQ3_resources.mpp
    d. GD_PartB.mpp
    e. GD_PartC.mpp

Content of the Word Document in the final submission
To avoid problems with **Turnitin**, do **not** copy the questions from this assignment specification into your Word document.

However, do make it as easy as possible for your marker to identify the question you are answering by labelling each question clearly. For example:

> **Part A**
>
> **Question 1**
> *Your answer*
>
> **Question 2**
> *Your answer*

The Word document (with your group answers to the questions) **must also** include a coversheet/title page at the start of the document that clearly shows all members of the group. A template for the coversheet/title page follows.

Assessment Item 2 Coversheet
Group Members:

Student Name:	Student Id:
Student Name:	Student Id:
Student Name:	Student Id:

Remember that it is your responsibility to **keep backups of your work** and of your current version of the final group assignment.

Although there is to be only one submission of the final group assignment by one member of a group, it is the responsibility of all members of the group to make sure that the correct files are submitted by the due date.

5 Marking Guide

Assignment Question	Criteria	Marks available	Marks awarded
Individual Sub-deliverables	Marked separately on Moodle		
Part A			
Assumptions	Listed, justified and stated clearly at the start of the Word document (if any)		
Q1	The adequacy of the Project Schedule	7	
Q2	a) CPs; b) impact of hols; c) & d) shorten project	3	
Q3	Dealing with resource issues	3	
Q4	Dates for bookings	2	
Q5	Appropriateness of the written memo with all the information included and corresponding to the schedule.	3	
Sub Total Part A		**18**	
Part B			
Q1	The adequacy of the amended Project Plan	1	
Q2	End date and duration – any difference and if so what is it?	1	
Q3	Description of impacts of each of the changes on duration	2	
Q4	Description of impacts of each of the changes on cost	2	
Sub Total Part B		**6**	
Part C			
Q1	Save baseline	0.5	
Q2	a) Status date set + gridline b) Screenshot of Tracking Gantt with updated status information c) Screenshot of earned value table + CPI & SPI	2.5	
	d) Completed status report	4	
Q3	Project Closure	3	
Q4	Changing requirements	1	
Sub Total Part C		**11**	
TOTAL		**35**	

Notes:
1. This assessment item 2 also includes 5 individual sub-deliverables and peer assessment. The marks for the 5 sub-deliverables are recorded separately in Moodle.
2. All marks for this assessment item depend on students making satisfactory contribution to the group. If students are not contributing to they may be asked to work on the assignment as an individual and/or have marks adjusted. Both peer assessment and individual submissions will be taken into account.
3. Sub-deliverables must be submitted on time to be awarded marks and both peer assessments must be completed.

Appendix 1: Milestone Checklist

1. Are the marketing requirements agreed?
2. Are project targets agreed (e.g. schedule, features and quality)?
3. Has a feasibility study been successfully completed?
4. Is the product concept selected and well understood?
5. Are user product mock-ups circulated and reviewed with marketing?
6. Are the product and production technologies selected?
7. Have key components and suppliers been identified?
8. Has the supply chain impact of a new product been reviewed?
9. Is the project organisation agreed?
10. Is the project team established and operational?
11. Is any project teambuilding and leadership development required?
12. Is any technical training of project members required?
13. Is the project budget established and approved?
14. Have the project risks been assessed, mitigated and reviewed?
15. What are the key risks and how are they mitigated?
16. Are the appropriate resources identified and allocated to the project?
17. Are key stakeholders identified?
18. What are the quality assurance activities employed?
19. What are the quality metrics you propose to monitor and what are the control methods you plan to use in your project?

This is the status report template that is to be used for Part C, question 2 part (e).
The information to be entered in the status report is shown in italics.

Project Name: *<enter project name>*   Status Report *<#>*

Project Manager: *<enter the name of the project manager> (for this assessment item, enter the names of all members of the group>*

Status as of: *<enter status date>*   **End of Week:** *<#>*

Earned Value Figures

PV	EV	AC	SV	SPI	CV	CPI	BAC	EAC	VAC

<Enter the earned value figures in the table above. The data in this table must correspond to the data in your GD_PartC.mpp file>

Project Description

<A brief description of what this project is about.>

Milestone Status

Milestone	Description	Week scheduled (baseline)	Week Reached
M1	Project Start – after concept review	1	1 (start)
M2			
P1			
P2			
M3			
M4			

<For each milestone, enter the milestone description and week scheduled for completion according to your baseline. If a milestone has been reached enter that information in the last column. The information about M1 has been entered for you. >

Status summary (schedule and budget)

Schedule

Planned finish date: *<enter date>*
Current estimated finish date: *<enter date>*

Summary:
<Based on the finish dates, explain whether the project is currently ahead or behind and by how much.>

<Based on the schedule variance (SV) explain in dollar terms whether more or less work has been completed compared to what was planned and by how much.>

Budget

The actual cost to date: *<enter the actual cost to date here>*
The planned cost to date: *<enter the planned cost to date here>*

Summary:

<Explain whether the project is currently over or under budget and by how much>

*<Based on the current data (and assuming the project continues at the same rate of efficiency), report the **estimated cost at completion**. Explain whether this means the project is expected to be over or under budget and by how much. >*

Explanations
<Explanation of current status. Identify the tasks responsible for the results and explain the reasons. For this assignment you must at least highlight which tasks are not tracking according to their original estimates and explain whether they are perfoming better or worse and by how much.>

Major changes or issues since last report
<Describe any major changes or issues since the last report>

Risk watch:
<Review the risk plan and project risks. Document any changes here>