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UDTU Assignment 4B

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UDTU Assignment 4B

Thomas Howard

Introduction

This report deals mainly with the course evaluations and considers how the evaluation relates to the course's learning objectives and core elements. The report also details the peer feedback and my own personal reflections on the student learning and my overall conclusions from the UDTU course.

Description of the last part of the course

This section gives a short overview of the course and the day teaching structure.

My contribution to the course

My taught section of the course was separated into 6 different sections:

- **An introduction to product development**: The purpose here was to build an common understanding of what a product is and what the stages for development are often considered to be for physical products. To a large degree it was left to the students to understand what this meant in their own field of pharmaceutical products.
- **Organisational structures**: This section is not applied but for general knowledge of the students. It will help them to recognise what type of organisation they are working in (when they conduct their projects) and look into some important implications of the organisational structure with respect to project management.
- **Product planning**: The product planning part of the course is to describe to the students how project fit within a company portfolio. This is vitally important as the best product may not be that which is best for the market but one that has compromise with the company's resources and capabilities.
- **Managing the Innovation Process**: Concerns identifying the level of innovation expected from their new product and how best to manage it with respect to the importance of time to market, reliability, cost and overspend etc.
- **The product development process**: This is the really practical and important part of the course where the students learn to describe the typical stages of product development in terms of stage-gate processes. They are expected to be able to apply this to their own project and lay out a complete plan for their project.
- **Integrated product development**: This is an additional a more advance approach to project management and product design which introduces to the students the benefits of developing the market, the product and the production of a design at the same time. Example illustrate how this is used to better deal with trade-off.

There was no change to the course, though I would like to change a great deal for next time around as discussed later in this report.

The structure of the day

As the course is essentially a crash course introduction into many of the concepts and considerations of project management (rather than going into depth in one aspect). For this reason it was inevitable that there would be a quite a lot of lecturing and material presented. The challenge was going to be to keep the student engaged.

In an attempt to keep the student active the day was separated into blocks, each block one hour long:

30mins – Lecture and discussion on

10mins – Exercise and application of work

5min – Round-up

15mins – Break

Analysis of applied teaching and assessment methods

The teaching methods did meet my expectations. However, I would say that the exercises need working on and need some context or more grounding in the pharmaceutical world in order to give the students a better understanding of the content and a better possibility of being able to apply it.

The teaching methods did meet my expectations. The lecturing was straight forward but can be a bit boring for the students. The dialogue method helped a lot but is quite difficult as it is quite hard to plan for. I think having now given the course once I will be in a much better position to plan the dialogue. I would also conduct a more thorough pre-test in order to gain some context for the students. I would ask them to describe one of their projects (in layman's terms) from the starting point (the task given) some of the essential steps, through to the final output. I could then ask the individual students to try to put some of the concepts in relation to their previous projects through the dialogue.

The assessment method work very well. I felt that the student were able to really demonstrate their understanding of the course while gaining some feedback on their mistakes and misinterpretations. I also really like that the output of the course will then be used for practical purposes for their later project work. As previously discussed, I think a mid-course assessment may have also helped.

Discussion of the assessment

In order to aid the grading of the reports and the presentation, a grading scheme was created (see Appendix 1) to show the standard expected of each of the elements of the report in order to achieve each grade. This was not mean to be used to decide the grade but to help to structure my evaluation and help me to justify why a particular grade was chosen.

The reports were handed in by the students and read by myself and one other professor. This was useful to write down questions for the oral exam regarding items of the report that looked like mistakes, that looked unfeasible or that seemed to be misinterpretations.

This really highlighted the benefit of having an oral exam alongside the report as students were able to demonstrate that they have understood concepts despite small errors or miscommunication in the report. Gantt charts and actor networks could be thoroughly analysed and using this method and the goals and objectives could be scrutinised and had to be robustly defended by the students. I felt the exam allowed us not just to gauge the student's understanding but also to differentiate between the talents and capabilities of the students.

Learning outcome

The students certainly gained the competencies to create a realistic and usable project plan. They also learnt how to use many of the tools suggested and how to formulate their projects objectives, requirements and success criteria.

There was a problem that quite a lot of the content of the course concerned not just the project planning phase (which was able to be assessed) but also operational project management which was not really assessed as none of the projects had already begun.

Taking the learning objective associated with each of the core concepts.

1. **Considering a research output as a product**

A. Explain what is meant by a product and its dependence on context.

B. Explain where product design sits in the product development process.

C. Explain where development decisions and activities may take effect.

D. Formulate your product development success criteria and challenges

All of the above were both dealt with in the report and the oral exam and were adequately assessed. I felt that the students had achieved all of the above objectives as most of them had a explicit section of their report dealing with this.

2. **Identifying the type of organisation in which you are conducting your project**

E. Explain the difference between organisational structure types.

F. Explain the benefits and problems of the different types of organisational structure.

G. List the ways in which an organisational may be structured or change.

H. Identify organisational structures and consider the important aspects.

At the end of the course the students decided on their projects and the companies which they will be working with. Although it was had to determine whether they ha identified the correct organisational structure type, the important thing was that they were able to reason as to why they believe the company to have a particular organisational structure.

3. Positioning your project within a company's portfolio

I. Define the different types of new product developments in relative terms.

J. List the 5 stages of the product planning process.

K. Explain what is meant by a product platform.

L. Apply portfolio management techniques.

Similar to core element 2, it was hard to assess whether the students were right or wrong but the justification for their decisions was most important. Students were able to position their product within the market and with respect to the company's portfolio.

4. Applying innovation management principles

M. Evaluate the scope of activities related to innovation management.

N. Follow the four stage innovation management model.

O. List the leadership roles associated with your project work

P. Identify important business criteria, trade-offs and innovation measures.

The above were all achieved except for learning objective N which was more operational and was not covered well in the assessment.

5. Applying project management techniques to development of new products

Q. List the benefits of a formalised product development process.

R. Explain what is meant by a stage-gate process.

S. Determine which development process models are most suitable.

T. Formulate a complete process model for your project.

This was completely covered by the report and the oral examination. A complete stage-gate process was formulated for each student and was full critiqued. Timescales were also added to each project stage and the outputs and success criteria, pulling together the learning from the entire course into several models.

6. Describing the difference between Sequential and Integrated Product Development (IPD)

U. Describe the difference between Sequential and Integrated Product Development (IPD)

V. Name the 3 key disciplines in IPD

W. Analyse a simple product in terms of the three main disciplines of IPD

X. Indentify the important stakeholders involved in the development of a product

Though this was not explicitly covered in the report s there was evidence to show that the students had used integrated product development style thinking, taking into account the market situation and the production facilities available at their case companies.

Analysis of the evaluation by the students

This section is separated into the evaluation of the students on CampusNet and then using the UDTU questionnaire.

Course evaluation (CampusNet)
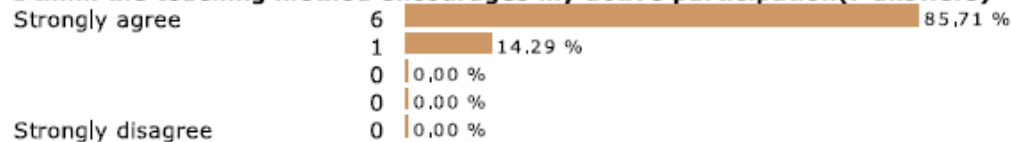
Overall Course evaluation

The overall evaluation appears to be very good. All eight questions seem to have received a particularly positive response and there is no cause for concern. The area for greatest improvement is perhaps in clearly communicating where the students stand academically throughout the course. Though the dialogue teach method does allow the students to gauge each other's understand, it does not help them to anticipate their overall grade in the evaluation in comparison to their fellow students. This is the largest problem with the assessment being one report and exam at the end of the course. This could have been improved with some midterm tests, exercises or presentations.
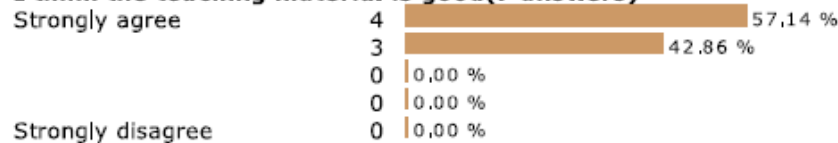
1　Form A

## 1.1　I think I am learning a lot on this course(7 answers)

Strongly agree	6	85,71 %
	1	14,29 %
	0	0,00 %
	0	0,00 %
Strongly disagree	0	0,00 %
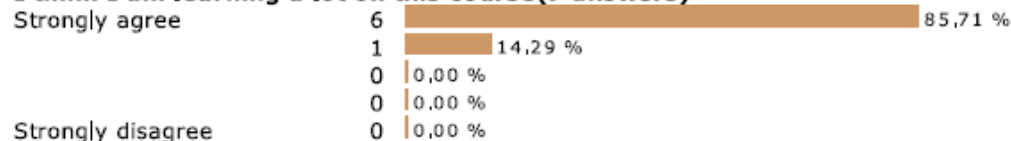
1.2　I think the teaching method encourages my active participation(7 answers)

Strongly agree	6	85,71 %
	1	14,29 %
	0	0,00 %
	0	0,00 %
Strongly disagree	0	0,00 %

1.3　I think the teaching material is good(7 answers)

| Strongly agree | 4 | 57,14 % |
	3	42,86 %
	0	0,00 %
	0	0,00 %
Strongly disagree	0	0,00 %

1.4　I think that throughout the course, the teacher/s have clearly communicated to me where I stand academically(7 answers)
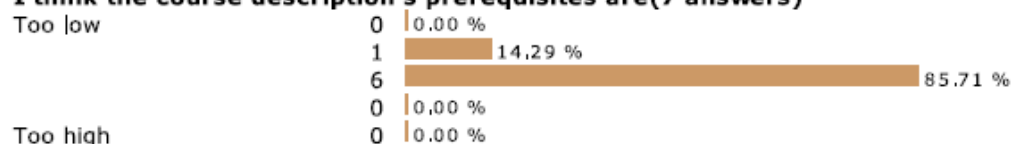
Strongly agree	2	28.57 %
	3	42,86 %
	2	28.57 %
	0	0,00 %
Strongly disagree	0	0,00 %
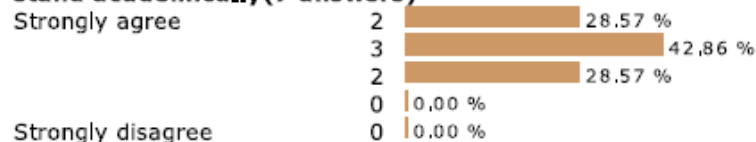
1.5　I think the teacher/s create/s good continuity between the different teaching activities(6 answers)

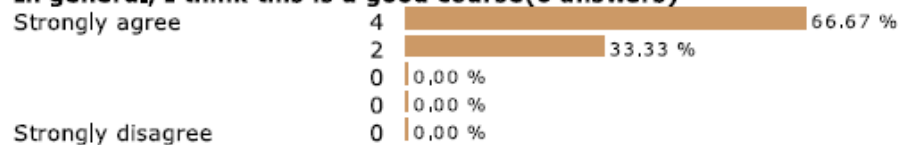| Strongly agree | 5 | 83,33 % |
	1	16.67 %
	0	0,00 %
	0	0,00 %
Strongly disagree	0	0,00 %
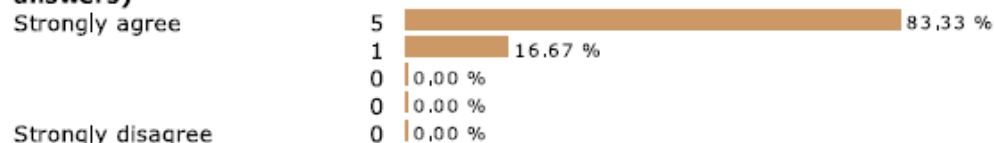
1.6　5 points is equivalent to 9 hrs./week (45 hrs./week in the three-week period). I think my performance during the course is(7 answers)

Much less	0	0,00 %
	1	14,29 %
	6	85,71 %
	0	0,00 %
Much more	0	0,00 %
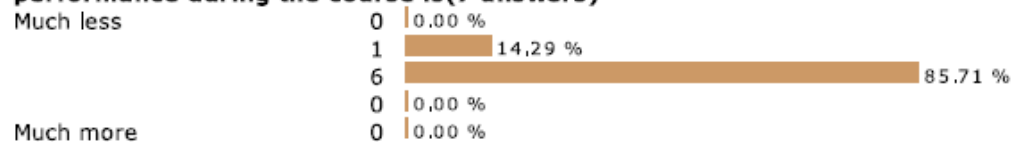
1.7　I think the course description's prerequisites are(7 answers)

Too low	0	0,00 %
	1	14,29 %
	6	85,71 %
	0	0,00 %
Too high	0	0,00 %

1.8　In general, I think this is a good course(6 answers)

Strongly agree	4	66,67 %
	2	33.33 %
	0	0,00 %
	0	0,00 %
Strongly disagree	0	0,00 %

Teacher evaluation – Thomas Howard

I am fairly happy with my personal evaluations for the course. As with the overall evaluations I feel that there is no cause for concern. However, there is again a weakness in communicating the levels to the students and providing feedback on their progress. I think on reflection some more test and exercises used to better gauge their understanding throughout the course would be helpful.
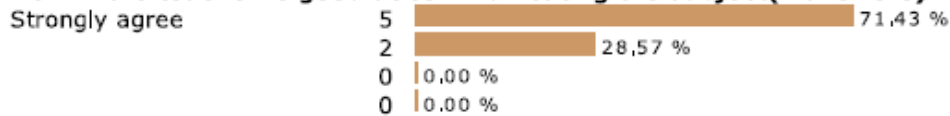
1 Lecture/Classroom instruction

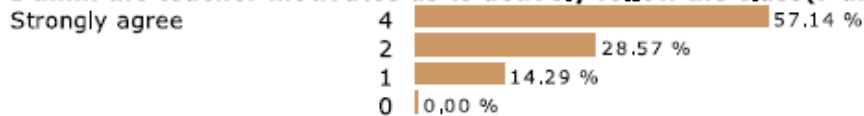**1.1 I think that the teaching gives me a good grasp of the academic content of the course(7 answers)**

Strongly agree	4	57.14 %
	3	42.86 %
	0	0,00 %
	0	0,00 %
Strongly disagree	0	0,00 %
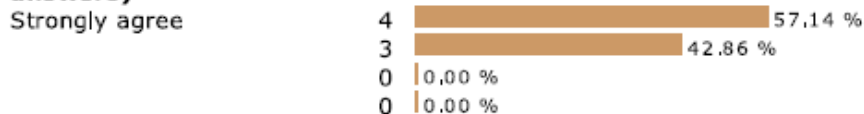
1.2 I think the teacher is good at communicating the subject(7 answers)

Strongly agree	5	71,43 %
	2	28,57 %
	0	0,00 %
	0	0,00 %
Strongly disagree	0	0,00 %

1.3 I think the teacher motivates us to actively follow the class(7 answers)

Strongly agree	4	57.14 %
	2	28.57 %
	1	14.29 %
	0	0,00 %
Strongly disagree	0	0.00 %

**2 Practical assignments/Lab courses/Course tutorial/Group work/Project work**

2.1 I think that I generally understand what I am to do in our practical assignments/lab courses/group computation/group work/project work(7 answers)
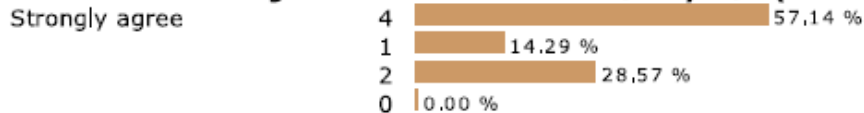
Strongly agree	4	57.14 %
	2	28.57 %
	1	14,29 %
	0	0.00 %
Strongly disagree	0	0.00 %

2.2 I think the teacher is good at helping me understand the academic content(7 answers)
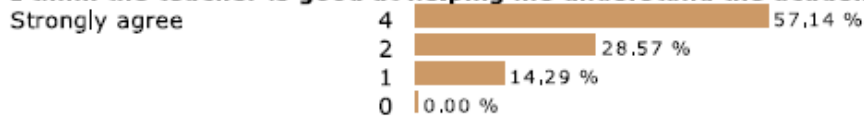
Strongly agree	4	57.14 %
	2	28.57 %
	1	14.29 %
	0	0.00 %
Strongly disagree	0	0.00 %

2.3 I think the teacher gives me useful feedback on my work(7 answers)

Strongly agree	4	57.14 %
	1	14.29 %
	2	28.57 %
	0	0,00 %
Strongly disagree	0	0,00 %

UDTU course experience questionnaire

The overall scores

The results of the questionnaire were generally very positive. I am a little bit disappointed with the results for the goals and standards. I feel that although the core elements and learning objectives of the course were clearly laid out, they were perhaps not concrete enough or should have been better supported throughout the course through intermediate assessment.

Each of the above sections will now be broken down into the individual elements.

UDTU Questionnaire Score
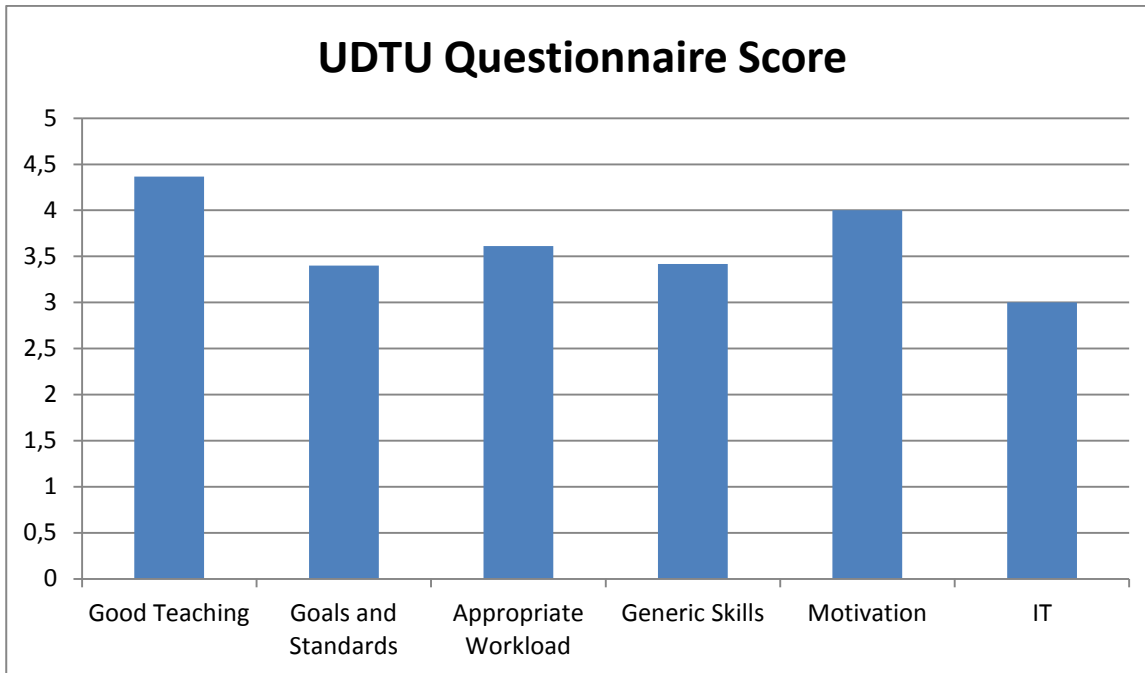
Questions related to 'Good Teaching'

Item	Average
3. The teacher normally gave me helpful feedback on my progress	4.17
5. The teacher showed no real interest in what the students had to say in this course (R)	5.00
16. The teacher made a real effort to understand any problems and difficulties I had in this course	4.67
19. The teacher has put a lot of time into comments (orally and/or in writing) on my work	3.17
21. The teacher worked hard to make the subject of this course interesting	4.83

The breakdown shows a clear weakness (relatively) in feedback and comments related to the student's progress. It is also echoed in the CampusNet course evaluation.

Questions related to 'Clear Goals and Standards'

Item	Average
2. The aims and learning objectives of this course were NOT made clear (R)	4.33
6. I have usually had a clear idea of where I was going and what was expected of me in this course	3.33
8. It was often hard to discover, what was expected of me in this course (R)	2.67
12. In this course it was always easy to know the standard of work expected from me	3.00
20. In this course it was made clear right from the start what was expected from me	3.67

This section had my lowest score of the questionnaire related to the expectations. I believe this became more apparent to the students when they were writing their report and will certainly be more useful to them in the following semester when thy are actually conducting their projects with a company. However, this is clearly the biggest weakness which could have been solved by some intermediate tasting and assessment.

I think I will have to also look over the content to see if it really does match the core concepts and learning objective that I have laid out.

Questions related to 'Appropriate Workload'

Item	Average
4. It seems to me that the syllabus in this course tried to cover too many topics (R)	3.00
15. I was generally given enough time to understand the things I had to learn in this course	4.00
22. The volume of work necessary to complete this course means that it cannot all be thoroughly comprehended (R)	3.83

This provided reasonable results. I would say when these are looked at with reference to the overall course evaluation that there is not a great deal of concern here and the students hard a reasonable amount of work of a course of this size.

Questions related to 'Generic Skills'

Item	Average
9. This course helped me sharpen my analytical skills	3.17
10. This course made me feel more confident about tackling new and unfamiliar problems	3.50
13. The course helped me to develop the ability to plan my own work	3.83
18. This course developed my problem-solving skills	3.17

This is as expected. I would have hoped for slightly higher for question 10 and question 13. I think this is also cause to modify the course material to closer match the learning objectives.

Questions related to 'Motivation'

Item	Average
1. This course was intellectually stimulating	4.00
7. I have found the course motivating	3.83
11. This course has stimulated my enthusiasm for further learning	4.17
17. This course has stimulated my interest in the field of study	4.00

I am happy with this result. I feel that the dialogue teaching method helped in this and the exercises were a useful way to mix up the content of the course. Again I feel that some intermediate testing may have further motivated the students as well as giving them more direction and feedback.

Improvements for the future

One of the biggest problems for this course was delivering the material before the students have been introduced to the project/topic that they will be applying the project management the theoretical work to.

Discussion of the peer coaching

There was very little feedback on offer from my peers. The two main point were:

- To try to use some more pharmaceutical engineering examples and to grasp some of the important terms to describe the field – it was very apparent to Arun who works in this field that my knowledge of the area was extremely limited which made it more difficult for me to describe or talk about some of the concepts.

- To try to create some more applied exercises which allow the students to simply apply the concepts to the field of pharmaceutical engineering. There were also suggestions that some small exercises to keep the students activated throughout would have been a good thing.

The comments suggested that the content was interesting and new to the pharma engineering department and it was apparent how important and useful many of the concepts were. The peers attend the section of the course on platform development which was perhaps the most difficult of the concepts to relate to pharmacy. There were offers form peers to help work the analogies into the new domain.

Conclusions about student learning

Without wishing to state the obvious, it was very apparent that finding a common context with the students is the first step to student learning. Half of the difficulties with this course were in producing concrete example from the pharmaceutical industry for the students to relate the material to.

This problem of finding a common context was also a double edged sword as it was also hard to find workable examples and exercises that could be completed during the class as I had a lack of domain knowledge in pharmaceutical engineering. However, this was somewhat solved by the report and assessment which required the students to apply the material leant during the course in order to create a complete project plan.

Final reflections

The UDTU course was very useful. It not only introduced me to a number of teaching approaches but aloes helped me to identify them and use them in an effective manner. I would strongly recommend the course not just to young, new professors like myself but also some of the older professors who have a more conservative lecture based approach to teaching.

The course has helped me to realise how important varying the teaching approach is in order to keep the students active in their learning. Also, the red thread through the learning objectives through the teaching methods and the material to the assessment approach is what makes a course work from a student's perspective. I feel that I can now put a course together with such a red thread though I have to work a little harder on finding material to support the important learning objectives rather than forming the learning objective around the material.

The course has also given me a lot more confidence with my teaching. Since the course I have began to innovate with my new courses, radically updating and modifying the material and introducing new techniques such as online feedback, course websites, integrated competitions and supporting software. The course has also given me added enthusiasm to achieve highly in my teaching duties.

Since delivering the course it has been voted as the best course on the Pharmaceutical Engineering degree programme.

Appendix 1 – Grading scheme guide

Grade And general description	Summaries of Topics	Case Study	Exercises	Layout
12 For an excellent performance displaying a high level of command of all aspects of the relevant material, with no or only a few minor weaknesses.	Good understanding of lecture material displayed through good summaries. With deeper understanding demonstrated through the use of own examples and different sources.	Extra insights gained at a theoretical and case level are clearly described through conducting and analysing the case.	Tools and methods applied exceptionally well and results were used as a basis to provide direction or a greater understanding gained from the analysis of their use.	Referencing, appendices, English, formatting and figures all to a great standard.
10 For a very good performance displaying a high level of command of most aspects of the relevant material, with only minor weaknesses.	Good understanding of lecture material displayed through good summaries. With no misunderstanding.	Theoretical work used to underpin and describe the case without any misuse or misinterpretation.	Tool and methods applied really well and a useful output gained from their use.	Referencing, appendices, English, formatting and figures mostly to a great standard.
7 For a good performance displaying good command of the relevant material, but also some weaknesses.	Good understanding of lecture material displayed through good summaries.	Good understanding of the case and the theoretical understanding clearly shown and applied to the case.	All done and all tools and methods are applied appropriately and correctly.	Falls short of a good standard on 1 or 2 of either the: referencing, appendices, English, formatting or figures.
4 For a fair performance displaying some command of the relevant material, but also some major weaknesses.	Adequate description of all topics in the summaries.	Reasonable understanding of the case demonstrated with theoretical understanding shown in places.	All done, most to an adequate quality but with 1 or 2 mistakes and misunderstandings in the application of the tools and methods.	Referencing, appendices, English, formatting and figures mostly to an adequate standard.
2 For a performance meeting only the minimum requirements for acceptance.	All summaries present. Several summaries provide a poor description of the topic.	Case study done and some attempt to use the theory to describe the case but with little understanding of the case or theory demonstrated.	All done but to a low quality where tools and methods are poorly applied.	1 or 2 of the following either not done or incomplete: referencing, appendices, English grammar and error checking, formatting and figures.
0 For a performance which does not meet the minimum requirements for acceptance.	Only a 1-2 summaries missing, little understanding demonstrated.	Case company mealy introduced.	Not all done / complete.	Messy, poorly structured, bad English.
-3 For a performance which is unacceptable in all respects.	Most summaries missing.	Not done at all.	Not done at all.	Dog's Dinner