

Construction Estimating and Tendering

CVEN9727

The University of New South Wales

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Course Outline

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5		Case Studies - Estimating
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8		Collusive Tendering
9		Competitive Bidding
10		Unbalanced Bidding
11		Tender Selection
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An Invitation to the Reader

These notes are part of an evolving process and I welcome comment and feedback on their content.

If you disagree with opinions given, have alternative interpretations or have something to contribute that would enhance the notes, I would be very pleased to hear from you.

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Overview

Estimating

Estimating is a fundamental skill in all project work. As a project progresses, the accuracy of an estimate could be expected to get better as more information becomes available. Project hold points, and approvals to continue, depend on estimates.

And indeed, which of you intending to build a tower, would not first sit down and work out the cost to see if he had enough to complete it.

Luke 14:28

To estimate successfully, there is a combined requirement to have a working knowledge of an industry's work methods and productivities, some expert judgement, and an ability to deal with, at times, tedious amounts of data. Many of the more successful estimators are, in fact, senior professionals. New graduates find great difficulty estimating with any degree of accuracy, because of the experience requirement. Unfortunately, estimating has yet to be packaged as something other than involving art, though there are a number of useful computer packages (generally based on spreadsheet and database methodology) that assist the process. The internet has some material as well.

From estimate to tender

From an estimate, a tender may follow. An estimate and a tender are not the same, though many people (wrongly) use the two terms interchangeably. An estimate is modified by managerial decisions on profit, competitiveness and so, and then incorporated into an offer involving not only a cost and time, but information such as qualifications or conditions, work method, quality, and resources. The offer is the tender, which once accepted becomes a contract.

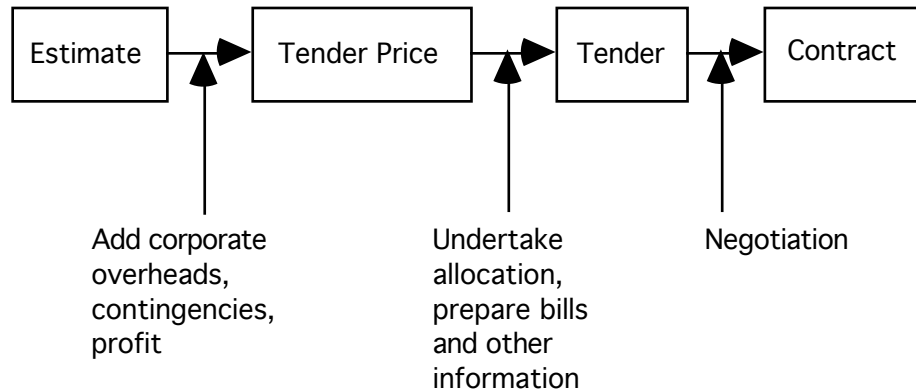


Figure 1 (Havercroft, 1989)

Figure 1 is drawn to show the distinction between an estimate and a tender.

The term 'bid', although used synonymously for tender, commonly only refers to the price associated with a tender. 'Proposal' is a term used interchangeably with tender.

Commonly in project work, tendering is the usual method an owner uses for obtaining a price for work or material supply. Contractors are provided with drawings, a specification, terms of the contract that will be entered into between the successful tenderer and the owner, and other documents. Tenderers are submitted and the owner makes a decision as to the successful tenderer. Many variations exist, of course, on this process, as indicated in the following notes.

Competition

Tendering puts contractors into competition for the purpose of obtaining offers to do work at an acceptable price to the owner.

Price is generally the basis for choosing between tenders, particularly for shortlisted or selective tendering, although the owner may reserve the right not to accept the lowest bid, or may choose on more than price.

Tendering is used for both public and private works, for the procurement of building and civil engineering projects.

It is a tried-and-tested method of overcoming favouritism in the selection of contractors. Trust is placed in the competitive bidding process to deliver an acceptable price for the work.

Aims

When you have completed these notes, you should have a better understanding of:

- Estimating techniques.
- Converting an estimate into a tender.
- Tendering.
- Tendering procedures and strategies.

Although a tender usually becomes a legal offer, which once accepted results in a binding contract, and is part of contract law, the intent is not to make lawyers out of you but rather to make you aware of what you do know and do not know, where to turn for advice and what are the correct questions to ask.

Humour

There is a considerable amount of humour dealing with estimating and tendering. For example (different versions can be found),

Owner's estimate - the cost of construction in heaven.

Tendering - a poker game where the losing hand wins.

Bid - a wild guess carried out to two decimal places.

Successful tenderer - a contractor who is wondering what it left out.



Background reading

Cost engineering and quantity surveying texts deal with estimating issues, while most books on contracts and procurement involve something on tendering. There is no one recommended text. Selected references are given at the end of each unit.

Author

David G. Carmichael

David is a graduate of The University of Sydney (B.E., M.Eng.Sc.) and The University of Canterbury (Ph.D.) and is a Fellow of The Institution of Engineers, Australia, a Member of the American Society of Civil Engineers, formerly a Graded Arbitrator with The Institute of Arbitrators, Australia, and a trained mediator. He is currently a Consulting Engineer and Professor of Civil Engineering, and former Head of the Department of Engineering Construction and Management at The University of New South Wales.

He has acted as a consultant, teacher and researcher in a wide range of engineering and management fields, with current strong interests in all phases of project management, construction management and dispute resolution. Major consultancies have included the structural design and analysis of civil and building structures; the planning and programming of engineering projects; the administration and control/replanning of civil engineering projects and contracts; and various construction and building related work. In addition there have been numerous smaller consultancies in the structural, construction and building fields. He has provided expert reports and expert witness in cases involving structural failures, construction accidents and safety, and contractual and liability matters.

He is the author and editor of nineteen books and over seventy papers in structural and construction engineering and construction and project management.

The Learning Program

The educational strategies and course manual have had input from a variety of people. The course has been prepared using self/independent learning principles whereby students are able to develop their own learning potential at their own pace and in their own surroundings.

Learning is optimised through the management of the course material by a course coordinator and by the students themselves. Efficient learning practices and the motivation to learn, centre on the weekly units and interaction with others. This also enables a student's progress to be monitored. The contribution to the learning process of formally undertaking the course, on top of the content of the course manual, should not be underestimated.

There are four components to the learning resources for this course:

- The course manual.
- The interaction with the coordinator.
- The interaction with fellow students, colleagues and mentors.
- Supplementary reading.

The course manual is intended to be relatively self-contained although references to other sources are provided. The manual is a study guide with readings from other sources included as appropriate. It is divided into twelve units, with each unit representing material to be covered in one week. The manual is intended to guide you through the material at your own pace in your own surroundings. Exercises are set regularly throughout the manual to test your understanding of the course material and to take you beyond the material.

Each week candidates are expected to work through the relevant unit including the exercises. This is an essential requirement for successful study. It provokes the need to interact with the coordinator, fellow students, colleagues and mentors on matters raised from that work, from further reading that has been done, or from discussions with third parties. Attention should be concentrated on those matters considered important in understanding the material. The interaction provides feedback on your progress. The coordinator, an expert in the subject and one who is familiar with self/independent learning principles, assists with additional insight and understanding resulting from his/her experience and also provides feedback.

Your fellow students, colleagues and mentors also assist in the learning process through the sharing of experiences and through their questioning and discussion of the course material. The interaction enhances the learning experience.

It is suggested that you choose a mentor from among your workplace colleagues or supervisors. This mentor should be someone to whom you can relate well on a personal basis and a person with experience in the field of study. Your mentor can have valuable input in discussions on the course and relate the material to the workplace.

Supplementary reading may be from your personal library, your workplace library or an institution library. References to other sources are contained in the course manual.

Study Guide Exercises

As part of the learning process, exercises are set throughout the Study Guide to:

- Make you think about and reinforce the material you have just read.
- Test your understanding of the Study Guide material.
- Make you think beyond the issues covered in the Study Guide.
- Get you actively involved in the learning process.

According to the Confucian saying:

*I hear and I forget
I see and I remember
I do and I understand*

In management, there is frequently no right or wrong answer. In most cases people are satisfied with a satisfactory outcome. The idea of an optimum solution may not exist. People from technical backgrounds may initially have difficulty in accepting that there is no right/wrong, black/white, on/off, yes/no answer.

Spaces are left for your use in doing the exercises. The size of the space should not be interpreted as the length of the optimum answer. If you are happy with your understanding of the exercise, move on. You do not have to use the space provided.

Humour Icon

An icon is used to guide you through the humour in the manual, in case you miss the joke!



Assessment - General

Assessment is a part of the learning process and is designed to reinforce the course material and take you beyond. Inclusion of information by you in your submissions that means you are taking the learning to your workplace is encouraged. Submitted material also provides an opportunity for feedback to the student.

Examinations, although perhaps not having universal approval for encouraging learning, are also part of the assessment.

Assessment for the course comprises 5 components:

Component	Max. Mark	Dates
A. To Lead and Promote Class Discussion on a Topic	15	See file on My eLearning Vista
B. To Contribute to Class Discussion on Topics	15	Throughout Session
C. Assignment 1	15	Submit whenever you like, but late penalties apply after 5pm September 10
D. Assignment 2	15	Submit whenever you like, but late penalties apply after 5pm October 8
E. Final examination	40	Days of 29-31 October
Total	100	

Satisfactory performance in all assessment components is necessary in order to pass the course.

Criteria for Assessment

Unless otherwise specified, the following criteria will be applied in assessing your written work:

- Evidence of understanding of the concepts, theories and ideas developed in the course.
- Ability to apply these concepts to examples from your own experience.

- Clarity of description, explanation and attention to the focus of the assignment.
- Capacity to structure an assignment logically and limit it to the length required.
- Degree to which the material submitted for assessment addresses the specified or negotiated assignment requirements.

Detailed criteria are given below.

Grading

University grading is as follows:

0%-49%	FL	Fail
50%-64%	PS	Pass
65%-74%	CR	Credit
75%-84%	DN	Distinction
85%-100%	HD	High Distinction

Notes on Assignment Submissions

(Assessment Components C and D)

You are required to write on two topics for your 'hand-in' (electronically) assignments (Assessment Component C - Assignment 1 and Assessment Component D - Assignment 2).

Length, margins

Length - maximum **3 pages** (including appendices). Anything beyond 3 pages will not be looked at. Use 25 mm margins (left, right, top, and bottom).

Be concise. Get to the point of the assignment quickly. **Do not** pad submissions; do not regurgitate or paraphrase material from the Study Guide - reference it only.

Remember Forde's Third Law: *The longer the letter, the less chance of its being read.*

Do not repeat the wording of the assignment. **Do not** give a table of contents.

No assignment cover page, no headers or footers

Do not use a cover page. Use the first two lines of your submission for: Course name, particular assignment title chosen, and your name (all 12 point type).

Do not put anything into the headers or footers.

Transmission

Submit electronically to **My eLearning Vista** as an **MSWord.doc** document (and not rtf, docx or any other type of file).

Presentation

Use 12 point type and a standard font, single spaced.

Assignment material presented in a non-professional format will not be marked. It is strongly recommended that assignments be laid out professionally in order to demonstrate your communication ability.

A writing style involving **subheadings**, with a well developed **logic flow**, is recommended. Bullet points are acceptable within the submission, but not as the total submission.

Source material

Where the words of others are used, place these inside inverted commas, and quote the source. Where the ideas of others are used, cite the source **adjacent to its usage** (as well as in the Reference List at the end) with sufficient detail that the reader can find it. Do not attempt to pass off others' work as your own. That is, do not indulge in **plagiarism**. There is strength, not weakness, in acknowledging the work and ideas of others. Assignments will be marked down, and in extreme cases harsher action may be taken, for not citing sources of material. Quoting huge slabs of text is not recommended.

Referencing within the text may be done by either **Author (Date) or** by number - **bracketed numbers** [] are preferred; don't use superscripted numbers. The Reference List will be ordered to suit your chosen referencing method, that is, either alphabetically or numerically.

Do not use **footnotes**.

A complete **Reference List** and a complete **Bibliography** should be included, containing for each source (including private communications): author, title of article, publisher, volume, number, pages, and date. Assignments will be marked down for **incomplete citations**. [A Reference List includes only those sources directly referred to in the text. A Bibliography includes any related material that influenced your thinking.]

Marking scheme

The marking scheme is as follows.

High marks, up to fifteen (15 out of a total of 15), will be given for a contribution that:

- Is interesting.
- Contains personal and original critical appraisal/thought.
- Shows breadth of reading/knowledge/thinking.

Lesser marks will be given for a contribution that:

- Contains grammatical or spelling errors.
- Has not been proofread before submission.
- Doesn't address the topic.
- Is poorly structured.
- Is too discursive, not concise.
- Has insufficient content.
- Is too long.
- Doesn't cite the sources of quotes and ideas within the body of the submission and in a reference list at the end.

No (0) marks will be given for a contribution that:

- Is not up to postgraduate level.
- Contains plagiarised material.

Late submission penalty - Deductions of 1 mark will occur for every calendar day late after the date nominated. So, for example, if your submission is graded 10 out of 15, and you are 10 or more days late on submission, the mark you receive is 0.

Because submission can be whenever you like up to the date nominated, **no excuse will be accepted for late submission**. It is suggested that you submit early if you anticipate any troubles whatsoever (eg dog ate floppy disk, computer malfunction, boss asks you to do some work for a change, illness, death, away from civilisation) in submitting.

Resubmissions

Submissions may be asked to be resubmitted if they are lacking in some way, and generally below Pass standard. Resubmitted work may or may not be assessed, depending on performance in the rest of the course.

KEEP A COPY OF EVERYTHING SUBMITTED IN CASE SUBMISSIONS GET LOST OR MISLAID.
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Assessment Details

Assessment Component A

To Lead and Promote Class Discussion on a Topic

A1. You will be given a topic, selected from the Study Guide. This topic (and given dates) will be found in a file on My eLearning Vista. You will be expected to **lead and promote** a My eLearning Vista-based class **discussion** on this topic between the given dates. This will involve you in preparing and presenting (correct English please and no SMS abbreviations) on the topic, information such as (400 words maximum):

- Your understanding of the topic, or your answer if the topic is an Exercise.
- The understanding of other sources (written and personnel), if relevant, on the topic.
- Any relevant workplace experience.
- Any issue debatable or controversial on the topic.
- Thought provoking questions for the rest of the class.

And (200 words maximum on each occasion):

- Reply to others' input to the discussion. There is no need for an instant reply; a reply within one day is acceptable in order that you can give a considered response to the discussion point. It is acceptable to hold different opinions as long as you can justify your viewpoint. (Private communications to others can be done at any time, but of course these don't get marked.)

or

- If there is little or no response to your lead contribution, then give alternative viewpoints, situations, experiences, ...; perhaps play the devil's advocate. Keep on trying to promote discussion.

Also:

- Summarise the discussion after all the discussion is complete.

A2. Post your initial lead discussion on the **start date** given in the My eLearning Vista file. Discussion and your replies will stop on the **finish date** given in the My eLearning Vista file.

A3. Use **My eLearning Vista**. Your discussion topic folder will have already been set up in My eLearning Vista. It will be called 'Discussion Topic 1', 'Discussion Topic 2' etc.

As the lead discussor, you will need to 'Create Message'. When you do this, under 'Subject' type Topic 1 (or whatever your topic number is). Then type your 'Message'. If you are being asked to address an exercise that has multiple parts or questions, enter multiple **separate** messages under multiple 'Subjects' - Topic 1a, Topic 1b etc. (or whatever your topic number is). This will enable people to thread the discussions according to each part or question.

Do not use any other 'Subject' names.

To reply to contributions by others, click on the relevant 'Subject' and contributor, then click 'Reply' and enter your 'Message'. Do not enter a new 'Subject' name.

A4. Signing with a first name or pen name is sufficient, in order that others have a **name** to communicate with.

A5. **Do not use attachments**, because many people have trouble opening them.

A6. Allowance will be made for those leading a discussion early in the session, compared to those leading a discussion later in the session. Allowance will be made for topics that are more challenging than others.

A7. Topics and discussion start dates will be allocated 'randomly' to class members. **Please, no requests for changing topics or dates!** Date changes will only be made if you have a significant reason. Forward separate third party documentation (eg doctor's certificate, wedding booking) supporting your reason. Work commitments are not normally considered justification. A letter from a relative or work colleague is not acceptable third party documentation.

A8. The **marking scheme** is as follows.

Fifteen (15) marks will be given for a contribution that:

- Is interesting.
- Contains personal and original critical appraisal/thought.
- Shows breadth of reading/knowledge/thinking.

Lesser marks will be given for a contribution that:

- Contains grammatical or spelling errors.
- Has not been proofread before submission.

- Is poorly structured.
- Is too discursive, not concise.
- Has insufficient content.
- Is too long.
- Doesn't cite the sources of quotes and ideas.

No (0) marks will be given for a contribution that:

- Is not up to postgraduate level.
- Contains plagiarised material.
- Doesn't address the topic.

Assessment Component B

To Contribute to Class Discussion on Topics as Instigated by Others (under Assessment Component A)

B1. Meaningful, related and contentful discussion will only be assessed. This will include **contributing** (correct English please and no SMS abbreviations) between given dates (200 words maximum on each occasion):

- Any counter or alternative views on the topic.
- Any relevant workplace experience.
- Any issue debatable or controversial on the topic.
- Thought provoking questions for the rest of the class or lead discussor.

B2. You do not have to contribute on all topics, only those on which you think that you can add something meaningful to the discussion. If you have nothing relevant to contribute, please don't. In order to get full marks, it is sufficient that you contribute something meaningful to only **three topics** (or more topics, if your contributions are of lesser content.)

B3. The **marking scheme** is as follows.

Fifteen (15) marks will be given for contributions that:

- Are interesting.
- Contain personal and original critical appraisal/thought.
- Show breadth of reading/knowledge/thinking.

Lesser marks will be given for contributions that:

- Contain grammatical or spelling errors.
- Have not been proofread before submission.
- Are poorly structured.
- Are too discursive, not concise.
- Have insufficient content.
- Are too long.
- Don't cite the sources of quotes and ideas.

No (0) marks will be given for contributions that:

- Are not up to postgraduate level.
- Contain plagiarised material.
- Don't address the topic.

B4. Multiple contributions to the one topic are allowed, but only if you have something to contribute.

B5. Discussion should only be made between the given **start and finish dates** for each topic. Your discussion **should not be posted before** that of the topic's lead discusser.

B6. Use **My eLearning Vista**. The discussion topic folder will have already been set up in My eLearning Vista. It will be called 'Discussion Topic 1', 'Discussion Topic 2' etc.

Do not click on 'Create Message'.

Use the 'Subject' name(s) set up by the lead discusser. Do not make up new 'Subject' names. Click on the 'Subject' name, then click 'Reply' and enter your message.

The lead discusser has been instructed to set up 'Subject' names as follows: *As the lead discusser, you will need to 'Create Message'. When you do this, under 'Subject' type Topic 1 (or whatever your topic number is). Then type your 'Message'. If you are being asked to address an exercise that has multiple parts or questions, enter multiple **separate** messages under multiple 'Subjects' - Topic 1a, Topic 1b etc. (or whatever your topic number is). This will enable people to thread the discussions according to each part or question.*

To reply to contributions by others, click on the relevant 'Subject' and contributor, then click 'Reply' and enter your 'Message'. Do not enter a new 'Subject' name.

B7. Signing with a first name or pen name is sufficient, in order that others have a **name** to communicate with.

B8. **Do not use attachments** because many people have trouble opening them.

B9. (Private communications to others can be done at any time, but of course these don't get marked.)

Assessment Component C

Assignment 1

C1. Submission may be whenever you like, but note that **late penalties** apply if submitted after the date nominated above.

C2. Title your submission **Surname9727Ass1.doc** in order that it doesn't get confused with other student submissions, other courses and other assignments. Don't use any other title.

C3. PLEASE READ ALL the earlier notes on assignment submissions, including **plagiarism** and **referencing**.

C4. Answer parts separately. Use a heading for each part.

ATTEMPT EITHER X, Y OR Z

X. Cash flow estimate accuracy

Consider the accuracy of estimates of project cash flows (cash inflow and cash outflow) into the future. Base your report on a project that you are familiar with.

1. The project. In a sentence or two give a broad outline of the project whose data you are using. You don't have to use actual names, and hence confidentiality can be kept. The project could be that involving a contractor or a consultant.

2. Cash flow data. Collect some data on project cash inflows and cash outflows. This data could be that estimated at the start of the project (that is, as-planned), or as-executed project data, or preferably both. The data should cover the whole project duration and include not just \$ amounts but also dates. Report this data in tabular form.

3. Estimate accuracy. Using this data, comment on what should be believed on other similar future projects when it comes to assessing the accuracy of estimates of cash flows on these projects. Back your reasoning up with some analysis.

OR

Y. Cash flow influence on tender

There are many things that influence the final bid amount in a tender. One of these is the likely cash flow (cash inflow and cash outflow) anticipated by the tenderer over the duration of the project.

The report that you are being asked to write is sort of back-the-front, in that you are doing a post-project analysis rather than a pre-project analysis.

1. The project. In a sentence or two give a broad outline of the project whose data you are using. You don't have to use actual names, and hence confidentiality can be kept. The project could be that involving a contractor or a consultant.

2. Actual owner payment history Collect some actual data on project cash inflow and cash outflow. The data should cover the whole project duration and include not just \$ amounts but also dates. Report this data in tabular form.

3. Cash flow influence. Now assume that you had this cash flow information at the time of tendering. How would it have influenced or not influenced your tender price? Back your reasoning up with some analysis.

OR

Z. Interest rate estimate accuracy

Consider the accuracy of estimates of interest rates into the future.

1. Historical data Collect data relating to the movement of interest rates in Australia or any other country. State the particular usage of these interest rates (eg commercial AAA credit rating rates, home mortgage, bonds, savings account, ...). The data needs to go over a reasonably long period of time. The data should include not just the rates but also dates when the rates changed. Report this data in tabular form.

2. Analysis. Given this data, what do you conclude about estimate accuracy for interest rates? Back your reasoning up with some analysis.

Assessment Component D

Assignment 2

D1. Submission may be whenever you like, but note that **late penalties** apply if submitted after the date nominated above.

D2. Title your submission **Surname9727Ass2.doc** in order that it doesn't get confused with other student submissions, other courses and other assignments. Don't use any other title.

D3. PLEASE READ ALL the earlier notes on assignment submissions, including **plagiarism** and **referencing**.

D4. Answer parts separately. Use a heading for each part.

ATTEMPT EITHER X, Y OR Z

X. Owner payment influence on tender

There are many things that influence the final bid amount in a tender. One of these is the likely owner payment practices which may be anticipated by the tenderer over the duration of the project. Some owners pay 100% of that claimed on time, while some owners delay paying for as long as possible, and then still don't pay 100% of that claimed.

The report that you are being asked to write is sort of back-the-front, in that you are doing a post-project analysis rather than a pre-project analysis.

1. The project. In a sentence or two give a broad outline of the project whose data you are using. You don't have to use actual names, and hence confidentiality can be kept. The project could be that involving a contractor or a consultant.

2. Actual owner payment history Collect some actual data on claims made (by the contractor/consultant) and payments made (from the owner/client). The data should cover the whole project duration and include not just \$ amounts but also dates. Report this data in tabular form.

3. Cash flow influence. Now assume that you had this owner payment history information at the time of tendering. How would it

have influenced or not influenced your tender price? Back your reasoning up with some analysis.

OR

Y Workplace experience - disreputable tendering practices

The Study Guide mentions a range of illegal, unethical and immoral practices adopted by both parties (owner/purchaser and contractor/consultant/supplier) to tendering. However, separate from these, there are a lot of grey areas of tendering practice which might be described as 'not nice' or disreputable practices, and are not black-and-white in terms of being illegal or unethical. Consider the topic of such 'not nice' tendering practices on the part of either or both tendering parties.

1. Actual Situation

In about 1 typed page, describe a situation, event, practice, occurrence, ... in your workplace (past or present) related to the topic.

2. Critical Analysis

Then, separately in about 2 typed pages, critically analyse what you have just described according to the material given in the Study Guide or have come across in other sources (written, experienced, colleagues or otherwise).

In your analysis, be careful to distinguish between provable fact (repeatable, objective), and opinion (subjective, anecdotal). Better marks will be obtained by those submissions that recognise the difference. Opinion is acceptable for inclusion as long as the writer demonstrates that s/he recognises it as such.

In your analysis, be systematic and structured. Better marks will be obtained by those submissions that are systematic and structured.

Do not include any information that is copyright, confidential, or libellous, would cause embarrassment or similar. If necessary, slightly colour the real facts.

OR

Z. Individual thinking

The Study Guide expresses many opinions; there are anecdotal and subjective views given. Not everything in the Study Guide is objective or can be justified rigorously through the scientific method.

This assignment is intended to make you into a questioning animal rather than an accepting animal.

1. Study Guide bit

Select ONE thing from the Study Guide to which you hold an alternative view. Briefly quote the Study Guide's version (use inverted commas), and the relevant Unit and page and paragraph numbers.

Obviously the more substantial and the more detailed the topic chosen, the better will be your arguments in the following steps, and the better will be your assignment grade. Don't choose something trivial or broad.

2. Your alternative view

Give your alternative view. If the Study Guide already gives an alternative view, then don't repeat the same alternative view; present a different alternative view.

3. Justification

Give your reasons why an alternative view is possible. If you believe the Study Guide is wrong, it is alright to say so as long as you can justify your argument. The justification and your reasoning are the most important part of this assignment.

In your analysis, be careful to distinguish between provable fact (repeatable, objective), and opinion (subjective, anecdotal). Better marks will be obtained by those submissions that recognise the difference. Opinion is acceptable for inclusion as long as you demonstrate that you recognise it as such.

In your analysis, be systematic and structured. Better marks will be obtained by those submissions that are systematic and structured.

Why this assignment?

One major outcome of postgraduate study (besides the knowledge and qualifications) is that you develop into a questioning animal; you no longer accept everything on its face value. You question everything (in a productive, not destructive, sense). You are possibly saying to yourself that you agree with the Study Guide content - it's all black and white and straightforward? But there are many alternative views to

those expressed in the Study Guide out there in the ether; the author of the Study Guide does not agree with them, but you may. On many issues the Study Guide takes a lone stance. Alternative (different, and even including contrary) thinking is encouraged. Most importantly, the assignment asks you to justify whatever view you hold, to substantiate your position.

Note

Please use the English 'alternative', not the double-meaning American 'alternate'.

Assessment Component E

Final Examination

Typical examination format

- The final examination is closed book, except that material in your own handwriting may accompany you.
 - Non-programmable calculators are permitted.
 - Time allowed: 2 hours duration plus 10 minutes reading time
 - Number of questions: Typically 4
 - Questions need not be of equal value.
 - Questions are to be answered in the order asked in specially provided examination answer books.
 - Blue or black pen is to be used.
 - Questions will typically be based on the exercises found in the Study Guide. Recommended examination preparation, accordingly, is to review your answers to the Study Guide exercises.
 - The choice of the date and time is by mutual agreement between you and a supervisor, but within a nominated examination period.
 - The examination procedures are based on trust and it is hoped that this trust will not be abused.
-

