

ENGR 401

CASE STUDY

What is a case study?

A case study is an examination of a real-life scenario or problem that professionals have encountered (historical) or might encounter (hypothetical).

Case study assignment

Due midnight (24:00) on Tuesday 27 April.

The length limit is all-inclusive.

The length limit has been extended to 3500 words maximum, to allow for some students' concerns regarding large reference lists leaving less room for the body of the case study.

There is **no single** correct approach, structure or right answer to the case study. This is where you use the open-ended nature of the assignment to structure your study to meet the marking criteria.

Your introduction will contain the parameters of your particular case study.

Case Study: Code of Ethics for AI

Length Limits: 2500 words minimum, 3500 words maximum, inclusive of references and headings.

Submission: ECS Submission System.

This assignment will be in the form of a case study: **Design and create a code of ethics for AI technology.** **Explain in writing your design considerations, goals and theoretical justifications for a code of ethics for AI. You will need to discuss a specific case for AI and the ethical issues involved.** This case study is expected **to show a developed understanding of the issues at stake.**

You must pick a relevant case for AI, for example:

Machine translation

Robotics

Logistics planning

Spam fighting

Chatbots

Game playing

Scheduling and planning

Speech recognition

Facial recognition

Robotic vehicles

You are free to choose a relevant case for AI that is different from the list above.

You are expected to appropriately support claims, and reference sources of information, with citations. The scheme required is the IEEE Citation Reference scheme, available from the IEEE home page <<https://www.ieee.org/>> (use the search box to search for the latest PDF copy of the IEEE citation reference).

The marking scheme appears on the following page, with a supplemental guide to written communication assessment. You must submit your assignment as a WORD file as feedback will be given as Track Changes.

Case study marking rubric

Trait	Excellent	Good	Satisfactory	Unsatisfactory
Technical writing skills. (20 marks)	The work has no spelling errors or discernible flaws in punctuation, grammar and sentence construction.	The work has very few spelling errors. Punctuation and grammar are mostly correct, and the sentences are complete.	There are lapses in spelling, punctuation and grammar, but not enough to seriously distract the reader.	There are numerous spelling errors, absent or incorrect punctuation, and severe grammatical errors.
Vocabulary, structure and style. (40 Marks)	There is a sophisticated use of vocabulary, choice of words and discipline-specific terminology. The paragraph construction is elegant and thoughtful and enhances the reader's understanding.	The work displays consistently appropriate vocabulary, correct word choice and discipline-specific terminology. There is a good variety of sentence construction, logical flow, and the style and structure are suitable for the audience and genre.	The vocabulary and sentence structure, and style is generally appropriate and not overly repetitive. The correct words and terminology are usually used, and the text flows well, displaying some awareness of the audience and genre.	The work displays limited, inappropriate or repetitive vocabulary. Words are misused, and there is a lack of discipline-specific terminology. The sentence structure is repetitive and simplistic; consistently disjointed, lacking flow. The style is inappropriate for the audience.
Clarity, conciseness, academic integrity, and appropriate referencing. (40 Marks)	The work displays clarity of thought through a cogent argument focussed on the question, enlightening the reader. The sources and citations are well-chosen and concisely supports the discussion. The IEEE referencing system is used skillfully and effectively.	The argument is effectively conveyed, addressing the question in an easily understood manner. Others' work is acknowledged in-text and with citations. The work uses the IEEE referencing system consistently and correctly.	The argument is reasonably clear; occasionally misses the point but answers the question; not excessively elaborate or complicated. Other sources appear to be acknowledged. Uses IEEE referencing system but with occasional errors or omissions.	The main point and argument are confused or unclear. There is irrelevant information, and the transition between ideas is awkward. The essay may be unclear. The work is not adequately referenced or attributed.

Referencing - Good

References contain intellectual substance; they add value to the study.

References are typically cited multiple times in the study (as a consequence of them adding value).

The author has clearly read and understood the references they cite.

General statements about things that are common knowledge do not merit citations to a reference.

More than that, general statements about things that are common knowledge typically add little value to the reader. At the highest level of performance, general statements about things that are common knowledge are omitted and replaced with specific statements which connect with each other to form a cogent argument.

Referencing - Bad

References are treated as a "check-box" exercise in meeting perceived assessment requirements.

The references contain little-to-no intellectual substance.

The author has clearly not read the references they cite.

Websites, blogs, and other weak sources are cited as references for things that are common knowledge (or even for things that are not common knowledge!).

If it is relevant and valuable throughout your study that "[statement of fact]" then by all means include that statement and a supporting reference which should be cited more than once.

If it is not [relevant and valuable throughout] then, because space is constrained, you might like to ask yourself "why is this [sentence/statement/claim] here?"

A case study

- (1) is based on real life events or realistic situations;
- (2) presents contextual and technical information;
- (3) may also present no clear-cut solution and have multiple perspectives.

Cases mimic real-world scenarios and aim to solve authentic problems.

Why should we do them?

Terrible things often happen and we need to understand the issues involved to prevent this happening in the future.

The Talis reading list and links given in lectures are a good starting point for understanding the reason for needing to analyse historical and hypothetical cases.

If you understand the 'why' your assignment will be easier to complete.

Typical parts of a case study

Introduction:	always present
Background:	always present and is often in the introduction
Methods:	sometimes present-depends on the demands of the case study
Analysis:	always present
Recommendations or Conclusion:	always present

How to think about your case study

Understanding the **situation** being faced;

Analysing the specific **problem** to be tackled;

Creating, **analysing**, and refining a **solution**;

And further **evaluating**, improving, and implementing. [1]

[1] Jordan, Michael P. 1988. "How can problem-solution structures help writers plan and write technical documents?" Solving Problems in Technical Writing. Ed. Lynne Beene and Peter White. Toronto: Oxford.

Situation

What are the needs of the audience(client)?

What are the constraints of the situation (time, resources, laws, technology)?

What are the background facts?

What are the key questions that need asking?

Problem

Before you can solve a problem you need to know what it is.

Defining a Problem clearly is crucial to finding a solution.

In defining the problem, you need to explain the factors that affect the problem.

Consider not only what the client says the problem is, but what the audience might not recognise.

Problem

Part of defining the problem is seeing it in terms of what has been done before. These questions might help you explain the full background to the problem:

What are the parameters that have been set for your analysis?

What is happening in the situation now?

What are the shortcomings of the current or previous ways of handling the situation?

What changes have been made in the situation? or are expected?

Solution(s)

Case studies often expect you to come up with alternatives; hence, you may need to examine more than one solution. Ultimately, to be effective, any solution must:

Solve the problem. Obvious, but explain: How does the solution work?

Explain how the solution can be derived from the available data. How does it fit with what we know?

Fit clearly into the available research on a topic. What research supports it?

This section could be a huge part of the body of a report.

Evaluation

Ask as many questions as possible. Here are a few:

Is the solution you suggest likely to be successful?

What limitations might prevent total success? (e.g. does it depend on people being trained?)

What must a company do to make your solution work? (funding? training? design? safety measures?)

If you are proposing more than one solution, which one(s) do you recommend be implemented? In which order? (short term vs. long term; most important vs. less important; necessary vs. optional)

Proofreading

There is a significant body of information which will be broadly relevant to your study but, as space is constrained, the question you need to answer for yourself while writing is actually:

Is this information more relevant, does it add more value, to the reader than other information which could be put in its place?

This involves proofreading your drafts and making decisions about the content. Proofreading helps you to meet the word limit and refine your argument. Most documents should be proofread between 6-10 times.