

Assignment 3

Assignment 3 contributes 30% of the marks for this unit.

General Requirements

This is an individual assignment. Include your name and student ID number.

For this assignment, you must use the same product innovation you proposed in Assignment 1 and 2.

Do not include a signed declaration of the originality of your work, as this is assumed. It is always a requirement that your work is original for all assessments in this unit.

This is a technical, engineering report. This means you should avoid informal or colourful language. Your language should attempt to be objective, neutral and avoid discussing opinions or feelings. Any unsubstantiated or bold claims should be avoided without compelling evidence or references. Avoid the use of first-person pronouns such as “I”, “my” and “we”.

Reference any sources using the IEEE referencing standard.

Late assignments will incur a penalty as stated in the unit outline.

It is preferred that you upload your assignment in PDF format rather than word, as this reduces errors in the way Turn It In renders your document.

Do not use large language models such as Chat-GPT in any way in preparation of this this assignment.

You may include diagrams or images you created for Assignment 1 or 2 in this assignment.

The Assignment

In this assignment consider the development of an innovative product, as well as launch of this product through a startup business.

You are required to use the same product innovation as used in earlier assignments.

You will not be penalised for copying or paraphrasing content presented in Assignment 1 or 2.

This assignment is made up of four sections, with the marks for each section given below (contributing to a total of 30% of the marks for this unit).

Section 1 - Product Plan (15% of the marks for this unit)

Section 2 - Business Structure (5% of the marks for this unit)

Section 3 - Marketing Plan (5% of the marks for this unit)

Section 4

In Section 4, select to write on either 4(a) Competitive Advantage OR 4(b) Ethical and Sustainable Design.

4(a) Competitive Advantage (5% of the marks for this unit)

OR

4(b) Ethical and Sustainable Design (5% of the marks for this unit)

Section 1 - Product Plan (50% of this assignment)

Detail the system level design of your product innovation.

In this section, demonstrate that you have applied a considered and logical approach to the design of your product.

Consider the following items for inclusion in this section.

- A description of the product and its operation, function, and features, including relevant diagrams.
- What product concepts or variations were considered and then rejected? Explain why the final selected product concept was selected.
- The product architecture, including a functional diagram of the product and its operation.
- If the look and feel of the product is of particular importance, include a sketch or diagram of how the product will look.
- If relevant, consider mapping the user journey, or stages of operation of the product.
- Consider the stages of prototype development that you will use to develop this product. Prototypes are built for different reasons, such as: to test a product hypothesis; to validate design decisions and material use; to determine technical feasibility; for user testing; to verify specifications; for demonstration; pre-manufacturing version using common parts; and so on.
- Provide projected milestones for each stage of product development. Consider estimated timeframes for research, design, prototype iteration, alpha and beta testing, initial manufacturing run, product launch, production ramp-up.
- For physical products. consider how the product might be: Designed for Manufacture and Assembly (DfMA) and Designed for Environment (DfE).



Section 2 - Business Structure (16.6% of this assignment)

Consider a business “startup” to launch your product in the marketplace.

The following items might be included in this section.

- The company structure and operating geography, business name, domain name and branding.
- A short company description of the business model.
- The company purpose/vision, mission and/or values.
- How does the business capture value? What is the revenue model of the business?
- How does the business deliver value to customers? Is the business selling a product through a reseller network, or will the business have stores, or sell online only? Or some other approach?
- Consider the logistics of providing the product to the customer. For example, consider product ordering, product distribution, delivery, customer support and returns.



Section 3 - Marketing Plan (16.6% of this assignment)How will you market and sell the product in the first 90 days after product launch?

The following items might be included in this section.

- How will you **charge your customers?** And how much? What **pricing model to be trialed initially?** If relevant to your business model, consider **payments or commissions to distributors,** dealers, or **other sales channels (online and in-store).**
- Will you undertake **a soft or hard launch?** In what geography? Online or in-person/in-store?
- Discussion of and estimation **of market size** (TAM, SAM, SOM).
- Who are the **early adopter customers and how will you locate and access them?**
- What **sales channels will be used to reach these customers?**
- Consider a high-level marketing plan for the product **launch in the first 90 days.** What action-items will be undertaken **with media, advertising, web, social media, events and so forth.**
- **How will you determine success? What metric/s will you monitor to measure success and product-market fit?**

In Section 4, select to write on either 4(a) Competitive Advantage OR 4(b) Ethical and Sustainable Design.

Section 4a - Competitive Advantage (16.6% of this assignment)

Consider how your business might develop a competitive advantage over time.

The following items might be included in this section.

- How will you protect your product from copying? What trade-secrets / confidentiality will be essential to keep within the business?
- What intellectual property protections might you put in place, prior to launch and after? (given these can take years to implement and can be very costly). If you decide not to put IP protections in place, justify why and what the alternative protection strategy is.
- What license agreements / confidentiality agreements are in place and with whom?
- Consider potential competitive advantages that are not necessarily related to the product, such as branding, marketing, networks, customer engagement, supplier arrangements, customer access, supplier/distributor relationships, customer platforms, developer ecosystems and support, and so forth.
- How will you improve your product over time? What incremental improvements might be made? Is this the first product of a product family?

In Section 4, select to write on either 4(a) Competitive Advantage OR 4(b) Ethical and Sustainable Design.



Section 4(b) – Ethical and Sustainable Design (16.6% of this assignment)

Ethical design refers to design that resists manipulative patterns, respects data privacy, encourages co-design, is accessible and human centred.

Sustainable design is not only about minimising the environmental impact, but also about enhancing the social and economic well-being of the people who use your product.

The following items might be included in this section.

- Consider the ethical implications of your product and how these might be minimized in the current or future designs. Consider product design, material selection, manufacture, use, repair, disposal, reuse, and recycling.
- How might your product be Designed for Environment (DfE)?
- Consider how your product contributes to the United Nations Sustainable Development Goals (SDGs).
- Consider human-centered design approaches such as inclusive design, accessibility, and usability in the design of your product. This may include support for users with impairments that are temporary or permanent, functional or cognitive.
- Consider support for neurodiverse users.
- Consider how your product might be designed and tested to reduce common biases relating to gender, race, sexuality, class, age, and ability.
- Consider data protection and user privacy in the design of your product. Common data protection standards include the Australian Privacy Principles and GPDR standard.



References

If references are needed, please provide a reference list in IEEE format. If references are listed here, ensure to reference these in-text.

Appendices

Please note, appendices will not be reviewed in detail, so should only be provided to support claims made in the assignment.

Mark Allocation

Assignment 3 contributes 30% of the marks for this unit.

Marks will be allocated to each section of this assignment as follows.

Section	Percentage of this Assignment	Maximum Marks for this unit
1	50%	15
2	16.6%	5
3	16.6%	5
4	16.6%	5
Totals	100.00%	30

Marking Rubric

	Novice	Emerging	Pass	Good	Excellent
Task Fulfilment/ Academic Style (60%)	Do not address the task or responds to the task only partially or in a limited way. May have misinterpreted the task. Does not adhere to academic writing style conventions (i.e. formal, impersonal, and objective).	Responds to the task only partially or in a limited way; Mostly adheres to academic writing style conventions (i.e. formal, impersonal, and objective)	Responds to the task relevantly but may lack detail and length. Mostly adheres to academic writing style conventions (i.e. formal, impersonal, and objective).	Responds to the task relevantly but may lack detail and length. Fully adheres to academic writing style conventions (i.e. formal, impersonal, and objective).	Responds to the task relevantly in sufficient detail and length (including formatting of text). Fully adheres to academic writing style conventions (i.e. formal, impersonal, and objective).
Grammar, Vocabulary and Punctuation(20%)	Contains several grammatical errors and/or a limited range of vocabulary, which may include inappropriate usage. Contains numerous spelling and/or punctuation errors which impede overall comprehension - do not penalise typos or common misspellings.	Contains some grammatical errors and/or uses a limited vocabulary. Contains several spelling and/or punctuation errors – do not penalise typos or common misspellings.	Contains some grammatical errors in complex forms, and/or may include a more limited vocabulary range. Contains a number of spelling and/or punctuation errors - do not penalise typos or common misspellings.	Contains a range of contextually appropriate vocabulary and include few, if any, grammatical error Contains very few spelling or punctuation errors - do not penalise typos or common misspellings	Contains a wide range of contextually appropriate vocabulary and does not include any grammatical errors Is free from spelling or punctuation errors - do not penalise typos or common misspellings
Organisation, Coherence, Cohesion(20%)	May lack overall organisation, thematic unity and coherence in and/or between sentences including the development of ideas, but shows some attempt at connecting the ideas expressed.	May lack overall organisation but develops some ideas coherently with some attempt at paragraphing demonstrated. Sentence structures may be limited and/or inappropriately connected.	Has an overall logic and coherence. Shows use of paragraphs and a range of sentence structures which are usually appropriately connected.	Is logically organised, expresses ideas coherently through well-constructed paragraphs, and a range of appropriately connected sentence structures.	Is logically organised, presents a unity of theme and expresses ideas coherently through well-constructed paragraphs and a wide range of appropriately connected sentence structures.