

Report 2 – Pair Proposal (1000-1200 wds/ 20%)

“Engineering is a **problem-solving profession**, and **clear communication** leads to **effective solutions**. Someone can point to a proposal you write and say, ‘see what a good solution this is; see the clear explanation of how this design solves the problem,’ Your competence as an engineer is proven by that proposal.”

H. Hart, *Engineering Communication*

Due Dates

Week 3, 2025	Proposal Workshop: collaborating, thinking, brainstorming
Week 3	Research & Writing prompt Workshops
Week 4	Problem Definition Discussion Forum
Week 5	Testing for Usability (Peer Review Forum)
Week 6	Proposal due, 11-13 Feb, 2025

Objectives

This is a pair assignment. All aspects of the assignment, from planning to formatting, to drafting and revising, should be composed jointly in close consultation with your partner, with workload shared fairly and more-or-less equally between the two of you.

Ideally, you’ll earn a **shared pair grade** for the proposal, though I may vary this at discretion should need arise; for instance, evidence of disparities in workload and/ or quality of work will result in individual grades reflecting this disparity. Hopefully, such will not be the case, as this would represent a major lapse in writing collaboration, an assignment and indeed course outcome, as well as a CEAB Graduating Outcome for engineering and computer science students.

Aim to **review** each other’s work during the **revision stage** and provide **constructive feedback**¹ on each other’s work to generate a “seamless” document. Do *not*, however, do any actual writing or re-writing of your partner’s drafts (nor get anyone else to do so) *without their permission*; at most, stick to providing tips and suggestions for improvement. You may also, of course, [consult with the CAC](#) for tutoring assistance with style and expression, and I highly recommend you do so.

This assignment can be understood as a response to a **Request for Proposals (RFP)**. To ensure you earn good grades, follow instructions carefully, referring closely to the following resources under **Modules 3-4**:

- Information on RFP’s
- Purpose, audience, and layout of workplace memos
- Goals, qualities, and functions of proposals, a core technical writing genre
- Writing prompts for each part of a formal proposal, given that a proposal is a multi-layered document comprising many distinct sections
- Sample Proposals to “see” what a proposal-in-action looks like.

¹ As per Steiner’s (2011) study of the writing habits of working engineers, “engineers exhibited an almost universal appreciation for having others review their work . . . They see the review process as a helpful way to make sure that all important points are covered and that the information presented is understandable to others” (p. 45-46). Steiner concludes: “Reviews are therefore a ubiquitous part of the composition process in the engineering industry” (p. 46).

Audience

Short proposals, submitted and read by parties *who are part of the same organization*, normally take the form of a **memo**. Hence in this case, address your memo to Jarred MacLean, your ENGR 240 course client, cc'd to me, **Monika Smith**.

What is a proposal?

A proposal responds to a **Request for Proposals (RFP)**; an RFP normally outlines some kind of unsatisfactory or troubling situation in a **company, organization, or community** that needs to be “made better.” A proposal responds to an RFP, presenting a design solution, either a product (e.g. software upgrade), a service (e.g. technical support), or advice (e.g. a recommendation), intended to remedy this unsatisfactory situation.

For instance, companies aware of problems in infrastructure, production, storage, or processing may request an expert opinion from technical professionals to show how things could be improved, expanded, or applied in different contexts. A financial institution looking to update its software, for example, may issue an RFP asking technical consultants to help them determine which software would best serve its banking needs.

In many cases, clients require evidence that a particular idea, product, or design is going to be feasible, technically, socially, and economically *before they spend money implementing it*. In short, they are looking for **concept verification**. Companies and governments have funds to spend on research; they want evidence-based advice from experts that shows them how problems can be solved; that a proposed design solution is **feasible**; and that it will result in definite **benefits**. Technical experts, in turn, want to garner those funds and, by writing successful proposals (including research proposals that lead to a recommendation), win rewarding and interesting projects.

Organization and Format – Genre Expectations

To do well on this assignment, closely meet the **genre conventions** you are being asked to demonstrate. Start by downloading a professional **Memo template** from MS Word, filling in the opening fields. Begin the main body of the memo with an opening paragraph of **Client Context (properly cited, IEEE Style)**, then present each of the following sections, applying **IEEE numbering system** for **headings** in a technical document:

1. **Problem Definition**
 - 1.1. Need Statement
 - 1.2. Goal Statement
 - 1.3. Objectives
 - 1.4. Constraints
2. **Plan of Action**
 - 2.1. Technical Plan
 - 2.2. Management Plan
 - 2.2.1. Timeline
 - 2.2.2. Budget
 - 2.2.3. Qualifications
3. **Conclusion**
4. **References**

When it comes to **formatting**, be guided by what you've learnt about **document design**: consider choices for laying out headings, fonts, lists, white space, border lines, etc., to create an attractive, professional, *accessible* document.

Assignment Deliverables

In response to the **RFP** issued by your course client for ideas on how to reduce plastic waste on campus (see **Module 3**), you will work in pairs to craft a formal proposal that undertakes to present an idea (**design solution**) for solving that problem—and to study its **feasibility**. Your design solution should aim to reduce the amount of soft and/or hard plastic at UVic that goes to Hartland Landfill, thus enabling the university to increase its plastic waste diversion rate (i.e. send less plastic to the Landfill) in accord with its sustainability goals. Governments measure the sustainability of a given project with reference to the Three Pillars: is it environmentally sustainable, is it socially sustainable, and is it economically sustainable?

Big Picture: Why This Deliverable?

Looking to other perspectives to enrich your specialization is something this assignment asks you to do. As computer science students, you are tasked with problem-solving a local sustainability challenge on this campus. On the face of it, you may wonder how tackling this challenge advances your goal of working in the field of *machine computing* (however you envision that). This is easy to answer. As Dr. Leslie puts it in *Curiosity: The Desire to Know and Why your Future Depends on It*:

Digital technology designers now have to be more versatile than ever, and that means *being curious about the knowledge of other people*. We know that new ideas come from the cross-fertilization of different fields; having access to multiple models of thinking is crucial because they give different answers.

Experts, including technical experts, must be able to integrate their specialized micro knowledge with the macro needs of the workplace and the world at large. Curiosity *about other things* drives innovative thinking and quality solutions. Many studies confirm how curiosity about things we don't (yet) know prompts major breakthroughs and achievements².

Other researchers make similar points: extending curiosity across domains drives creative and innovative **problem-solving**³. This assignment recognizes the value of this insight, asking you to cross-fertilize your digital specialization with modes of thinking, questioning, and understanding derived from other, potentially unfamiliar domains: in this case, **sustainability**. Bear in mind, moreover, that both IEEE and ACM (Association for Computing Machinery) highlight sustainability as integral to the discipline of computing as it continues to unfold in the real world.

LEARNING OUTCOMES

Working in pairs, you'll **propose a study**, the goal of which is to determine the **feasibility** of the design solution you're offering your course client, UVic Recycling Manager, Jarred MacLean. **Feasibility studies** form an essential part of **concept verification** in the overall **design process**. To be successful, your proposal should closely dovetail with **client requirements** set out in the initial **RFP**;

² I. Leslie. *Curiosity: the Desire to Know and Why your Future Depends on it*. New York: Perseus Books, 2014.

³ S. Firestein. *Ignorance: How it Drives Science*. Oxford: Oxford UP, 2012.

supply all components of a **formal proposal**; and demonstrate the following in a **clear, concise, well-formatted** manner:

1. A **problem exists** (things aren't as good as they could be!)
2. A **feasible solution** can be found (things can be improved!)
3. The situation you are addressing is not trivial: solving the problem will yield **benefits**
4. You have a **methodology** for **studying** both the problem *and* the solution to determine the **feasibility** of your proposed solution
5. The study you propose can be undertaken *and completed* by **April 1-3, 2025**, the key **deliverable** being a **feasibility report** which presents your **findings** and makes a final **recommendation** as to whether your proposed solution is indeed feasible or not.

Once you've designed the **proposed study** for this assignment, you will in fact undertake to carry it out in **teams of 4-5**. Hence, aim to propose a study that you could, in fact, reasonably undertake and complete in the last month or so of term, with a team of 4-5 people working on it.

The findings of your study will, in turn, form the basis of the course's final major assignment, **Report 3, the Feasibility Report**, which will advise Jarred MacLean (your client) on how best to move forward. It will present your "**proof of concept**": an evidence-based assessment as to whether the design solution you proposed is technically, socially, and economically feasible – or not.

To meet learning outcomes and earn good grades, closely align your proposal with requirements for content, organization, and format described below, as these reflect genre conventions for a formal proposal:

1. **Transmittal Document:** Present your proposal as a 3-5 page professional **Memo**, applying **doc design principles** to enhance readability and accessibility.
2. **Client Background:** Begin with a one-sentence statement of **Topic + Purpose**, then follow up with 1-2 paragraphs of detailed information about the client, making sure you **cite all sources of information** (both **in text** and in a concluding **References** list, using **IEEE Citation Style**) to align with **academic integrity**. This assures the client you know who they are, what they do, what their goals and concerns are, and what they are striving to accomplish.
3. **Problem Definition:** Next, supply a fully-developed problem statement in all its parts: **Need, Goal, Objectives, Constraints**. Conclude this introductory section with a brief **benefits** statement, highlighting the value to the client of undertaking the proposed research.
4. **Plan of Action - Technical Plan:** This is the crux of the proposal. Provide a detailed account of the steps you intend to take to determine the feasibility of your proposed design solution – i.e. your **research plan**. Identify key **questions** that your client and other stakeholders (users, technicians, administrators, the public) might have. Follow these questions with a well-detailed **methodology** which indicates where and how you intend to find answers to such questions.
5. **Plan of Action - Management Plan:** Here is where you overview milestones for completing the study (**Timeline**); how much it will cost (**Budget**); and whether you're qualified to undertake it (**Credentials**). Present the Timeline and Budget as charts.
6. **Conclusion:** Recap the opening **Problem → Solution → Benefits** framework; summarize the main body (**methodology** and **management plan**); and end by restating the **value** of the main deliverable: an evidence-based recommendation informing the client how best to proceed on this crucial issue

RUBRIC: Proposal Assignment - Evaluation Criteria

The rubric below describes qualities that make for excellent, good, competent, marginal, or unsatisfactory Proposals. Later, you'll be given a Review Checklist to help you finalize a proposal that demonstrates given learning outcomes, meets requirements, and can earn good grades.

A+ A A- 80-100%	<p>Strong, genuine engagement with all proposal requirements, providing superior development of a well-thought-out idea, clearly organized through each and every section. Excellent use of introductory elements (T+P; Client Context & Citation; Need Statement; Goal Statement; Objectives). Plan of Action (<i>research methods</i>) is thorough and detailed, showing commendable “thinking through.” Management Plan is well-organized and well-formatted, giving clear overview of budget and timeline in well laid out tables, complete with specific, relevant qualifications.</p> <p>Memo is properly formatted, making excellent use of document design principles (<i>headings; listing; tables; spacing; fonts</i>, and so on) to enhance readability and professionalism. Prose style is clear and concise, using strong action verbs; plain language; grammatical parallelism; correct punctuation. Absence of typos shows careful attention to detail. Proposal displays many obvious strengths, with few to zero suggestions for improvement. Overall, work shows superior grasp of proposal requirements: you’ve made the most of this task, resulting in a winning proposal.</p>
B+ B B- 70-79%	<p>Good to very good engagement with all proposal requirements. Topic shows much promise. Proposal is mostly clear and well-organized, with good use of all or most introductory elements (T+P; Client Context & Citation; Need Statement; Goal Statement; Objectives), though they may not always align with given expectations, requiring some minor revisions to achieve tighter structure and/ or focus could be recommended. Plan of Action (<i>research methods</i>) is on the right track but would benefit from added detail and development; Management Plan is mostly solid, making good use of tables to format budget and timeline; qualifications are generally relevant. Core elements are present, though one or more area may benefit from some revision.</p> <p>Memo is well-formatted, with good deployment of document design principles (<i>headings; listing; tables; spacing; fonts</i>), though some additional formatting in one or more areas may be needed. Prose style is generally fluent, making good use of Standard English conventions, though may contain some awkward and/or wordy patches; minor errors in wording, parallelism, punctuation, grammar, etc.</p> <p>Errors are more numerous and the need for revision more obvious at the lower end of the grade scale, but strengths definitely outweigh weaknesses. Notable successes show solid grasp of key proposal tasks.</p>
C+ C 60-69%	<p>Proposal requirements have been met to a satisfactory level: effort has gone into meeting main objectives, though with major flaws in one or more areas of content, citation, organization, and/or expression. Topic shows good potential, but requires fuller development. Most or some introductory elements are deployed (T+P; Client Context & Citation; Need Statement; Goal Statement), though they may not be in the right order; may not mesh with each other or with stated proposal goals; and/ or one or more may be missing or incomplete. Plan of Action (<i>research methods</i>) and Management Plan remain somewhat general in scope; at the lower end of the C grade, elements of a formal proposal may be incomplete, or absent.</p> <p>Memo template is generally well used, though document design principles (<i>headings; listing; tables; spacing; fonts</i>; and so forth) may be inconsistent or inappropriate. Prose style makes competent use of Standard English conventions, but sentences may be wordy and/or awkward; ongoing errors in diction, parallelism, and/or punctuation impede fluency, though they do not</p>

	<p>impede understanding.</p> <p>Both strengths and weaknesses are evident, and while strengths still outweigh weaknesses, obvious revisions are needed. Though major improvements in one or more areas are needed, work shows a satisfactory grasp of the proposal framework, a promising foundation to build on.</p>
--	---

<p>D 50-59%</p>	<p>Effort has gone into meeting proposal requirements, but achievement of main objectives is minimal. Topic shows promise, but remains undeveloped, with notable flaws in content, organization, and/ or development. Where present, introductory elements (T+P; Client Context & Citation; Need Statement; Goal Statement; Objectives) are poorly formulated or improperly sequenced, or may be missing entirely. The Plan of Action (<i>research methods</i>) and Management Plan lack focus; some components are incomplete or absent.</p> <p>Memo template, if used, may be well laid out, but document design elements overall remain very basic. Prose style aims to make use of Standard English conventions, but is only minimally competent: expression may be imprecise, redundant, and often distracting. Significant and ongoing errors in wording, parallelism, grammar, and/or punctuation form an obstacle to effective reading.</p> <p>Some successes are evident, showing an attempt to deploy the general framework, but work seems to be “in process” rather than “finished,” with weaknesses close to outweighing strengths. Be sure to check understanding of what’s required, and see me to ensure improved results next time round.</p>
-----------------------------------	--

<p>F 0-49%</p>	<p>Effort has gone into meeting some proposal requirements, but overall achievement of main objectives is less than minimal. A main topic is proposed, but lacks clear direction and forces the reader to infer connections between ideas. Strategic elements (T+P; Client Context & Citation; Need Statement; Goal Statement; Objectives) are confusing, misplaced, or absent. Entire sections may be missing or, where present, either not clearly laid out, undeveloped, and/ or lacking coherence and structure. The proposal is characterized by a number of serious flaws, which may reflect lack of comprehension or fluency, or a combination of these.</p> <p>Memo template may be used, and some document design elements applied, so the document may <i>look</i> professional. However, prose style is undeveloped, with ongoing errors in Standard English conventions, impeding fluency and comprehension.</p> <p>Overall, weaknesses outweigh strengths: the assignment does not meet basic expectations of competency, and significant revisions are needed to meet requirements. Be sure check your understanding of what’s required, and see me to ensure improved results next time round.</p>
----------------------------------	---

If you have any questions or concerns about the proposal assignment,
please check with me for guidance

**I am here to support your learning and help you do well
in the course**