

engineering design process — worksheet

Clone this file for your group. One worksheet per problem. Fill it in as you go — at step 6, you'll copy-paste the whole doc into your agents.

date: _____

client (whose problem): _____

engineering team: _____

recording link(s): _____

setup — three problems each

Each person writes down three real problems they want solved in their work, personal projects, computer life, or internet life. Then everyone adds a 🔍 emoji to the TWO problems they really want to try to solve in the group.

Person 1:

1. _____
2. _____
3. _____

Person 2:

1. _____
2. _____
3. _____

Person 3:

1. _____
2. _____
3. _____

Person 4 (if any):

1. _____
2. _____
3. _____

Problem with the most 🔍 : _____

1. define the problem

Notes from interrogating the problem — what actually hurts, when and how often it occurs, what happens if it stays unsolved, why it matters, hidden problems or false assumptions:

- _____
- _____
- _____

The problem is:

☐ client signed off on this sentence

2. background research

What already exists · what the client has tried before · what the team knows · constraints · how the problem works · what your agents found:

- _____
- _____
- _____

Research memo (problem statement at the top, then a summary of all your research — and actually read it!):

3. specify requirements

At least 3–5 checkable, testable criteria. Don't specify the solution inside the requirements!

Functional requirements (what new behaviors or capabilities must exist for the problem to be "solved"):

1. _____
2. _____
3. _____

Non-functional requirements (cost to build, cost to maintain, scale, usage, reliability, training/habits, who maintains it):

1. _____
2. _____
3. _____

4. brainstorm solutions

At least 5 ideas per person. Include the laziest and cheapest possible idea, and at least one very absurd and silly idea:

1. _____
2. _____
3. _____
4. _____
5. (absurd) _____

5. evaluate + pick

Score your TOP brainstormed solutions against the requirements from step 3. No vibes — if you're using vibes, articulate them AS REQUIREMENTS and add them to step 3.

solution	req 1	req 2	req 3	req 4	req 5

Client's pick: _____

Runner-up 1: _____

Runner-up 2: _____

6. prototype

Copy-paste this entire doc into your agents and ask them to prototype the chosen solution, based on the context and requirements specified. All of you can run separate agents on separate aspects, submodules, or designs. Keep trying things, in parallel, until the client has a "HELL YES!!!" feeling.

What each agent is trying:

- _____
- _____
- _____

☐ client says HELL YES!!!

7. test against requirements

Test rigorously against step 3 — in simulation and, if possible, in the real world.

requirement	met?	notes

If it doesn't solve the problem: did it miss the requirements, or was the PROBLEM under-specified?

8. communicate results

Take your conversation and your "final product," and ask your agents to turn it into a Specification Document covering:

- 1. What problem you solved
- 2. What requirements you met
- 3. The Cost/Details/Specification of your solution
- 4. The results

Anyone with a similar problem should be able to use it to replicate or modify your solution.

Link to Specification Document: _____