

This document includes two AI prompts that help you prepare a complete and structured request.

Prompt #1

I am preparing a request for Mechanical Engineering Services by the EnCata team and want to make sure my input contains enough information to start the work without delays or unnecessary rework.

Here is my current input:

"<<<INSERT YOUR INPUT HERE>>>"

At EnCata, a request for Mechanical Engineering Services should clarify the following areas:

1. Product overview and current stage

- What product, device, mechanism, assembly, enclosure, fixture, or test rig needs to be developed
- What stage the project is currently at: idea, concept, mockup, functional prototype, validation prototype, or pilot-ready design
- Whether an existing design, CAD model, or physical prototype is already available

2. Mechanical function and expected performance

- What the product or mechanism must do physically
- What must move, rotate, hold, support, seal, position, protect, or carry a load
- What result would demonstrate that the mechanical solution works as intended

3. Motion, forces, and loads

- Expected weight, force, pressure, speed, travel distance, or number of operating cycles, if known
- Whether the product includes moving parts, actuators, drives, gearboxes, rotating assemblies, pneumatics, or hydraulics
- Whether any parts may bend, wear, jam, vibrate, or lose alignment

4. Use conditions and durability

- Where and how the product will be used
- Indoor or outdoor operation
- Expected temperature, heat, vibration, impact, dust, water, friction, wear, transportation, or repeated handling
- Expected service life or frequency of use, if known

5. Dimensions, interfaces, and system integration

- Target or maximum product dimensions and weight
- Existing mounting points, mating parts, or external interfaces
- Integration with electronics, sensors, wiring, batteries, connectors, cooling systems, firmware-controlled components, or user controls
- Areas that must remain accessible

6. Materials and manufacturing

- Preferred or restricted materials, if any
- Required appearance, surface finish, rigidity, flexibility, weight, or corrosion resistance
- Preferred manufacturing methods, if known: 3D printing, CNC machining, sheet metal, welding, silicone molding, vacuum casting, or another process
- Whether the design must work with a specific manufacturer or production process

7. Assembly, maintenance, and user interaction

- How the product should be assembled and disassembled
- Whether parts must be replaceable, repairable, adjustable, or easy to service

- Requirements for fasteners, joints, access panels, or component fixation
- Ergonomic or user-handling requirements

8. Safety and standards

- Known safety requirements
- Required industry standards, certifications, or documentation
- Whether ISO, GOST, or other specific documentation formats are required

9. Engineering calculations and simulations

- What should be checked through calculations or computer simulations
- Strength, heat, vibration, motion, deformation, stability, or safety concerns
- Whether any calculations or simulations have already been completed

10. Prototyping and testing

- Whether a mockup, physical prototype, mechanism, or test rig is required
- What should be tested or measured
- What conditions the prototype should reproduce
- What result would be considered successful

11. Production, cost, and timeline

- Expected production volume
- Target manufacturing cost or budget limitations
- Tooling limitations, if any
- Desired project timeline
- Whether the design should support future scaling or mass production

12. Existing project inputs

- Available sketches, CAD files, drawings, photos, videos, component specifications, bills of materials, calculations, test results, or manufacturer requirements
- Existing decisions or components that should not be changed

13. Expected project outcome

- Whether you need concept options, calculations, a 3D CAD model, a physical prototype, manufacturing drawings, a bill of materials, assembly documentation, a design-for-manufacturing review, or a complete supplier-ready package

14. Risks and open questions

- What is still unclear or undecided
- Known concerns such as jamming, leakage, overheating, vibration, wear, poor usability, weak component fixation, assembly problems, or excessive manufacturing cost

Your task:

- Compare my input with the requirements above
- Identify missing, unclear, or weakly defined areas
- Structure your answer by the categories above
- Phrase each missing item as a short and practical question that I can answer
- Briefly explain why the requested information matters for mechanical engineering

Important instructions for your response:

- Use clear, everyday language that a non-engineer can understand
- Avoid unexplained abbreviations and specialist terminology
- If a technical term is necessary, explain it briefly in simple language
- Keep every clarification request concise
- If an exact number is unavailable, ask for an approximate range or a practical example
- Do not rewrite my request
- Do not propose a final engineering solution
- Focus only on identifying what information is still needed

Prompt #2

I am continuing preparation of my Mechanical Engineering Services request based on your previous analysis.

Here is my initial input:

"<<<INSERT INITIAL INPUT HERE>>>"

Here is the additional information I have provided to fill the gaps:

"<<<INSERT ADDITIONAL INFORMATION HERE>>>"

At EnCata, a Mechanical Engineering Services request requires clarity in the following areas:

1. Product overview and current stage
2. Mechanical function and expected performance
3. Motion, forces, and loads
4. Use conditions and durability
5. Dimensions, interfaces, and system integration
6. Materials and manufacturing
7. Assembly, maintenance, and user interaction
8. Safety and standards
9. Engineering calculations and simulations
10. Prototyping and testing
11. Production, cost, and timeline
12. Existing project inputs
13. Expected project outcome
14. Risks and open questions

Your task:

1. Re-evaluate the combined input: initial input + additional information
2. Check whether the available information is sufficient to prepare a useful Mechanical Engineering Services request
3. Based on the available information, compile a structured request specifically for the EnCata team

If some information is missing:

- Make reasonable high-level assumptions only where necessary
- Clearly mark every assumption
- Clearly mark any information that still needs to be confirmed
- Do not invent exact dimensions, loads, tolerances, materials, safety factors, standards, costs, or test limits

Structure the final request as follows:

1. Project overview
2. Current development stage
3. Mechanical function and expected behavior
4. Motion, loads, and performance requirements
5. Operating conditions and durability requirements
6. Dimensions, interfaces, and integration constraints
7. Materials and manufacturing considerations
8. Assembly, serviceability, and user interaction
9. Safety and applicable standards
10. Required calculations and simulations
11. Prototype and testing scope
12. Production volume, cost, and timeline
13. Existing files and project inputs
14. Risks, assumptions, and open questions
15. Expected deliverables and project outcome

Output requirements:

- Produce a structured, ready-to-send request for EnCata
- Use clear and concise language
- Clearly mark assumptions and missing information
- Preserve all relevant details provided by the user
- Do not add explanations outside of the final request