Manufacturing Readiness Review

Difficulty	Time	Type
Intermediate	60 minutes	Practice & Review

Background

A prototype is ready for printing, but releasing unreviewed files can waste machine time and material.

Engineering Problem

Perform a manufacturing readiness review of another student’s rocket assembly and identify issues before production.

Learning Objectives

- Evaluate CAD and drawing completeness
- Check manufacturability and assembly readiness
- Prioritize production risks
- Communicate corrective actions

Materials

- Peer CAD assembly and drawings
- Readiness checklist
- Slicer software
- Engineering notebook

Procedure

1. Confirm the correct file revision and project requirements.
2. Inspect component names, missing files, joints, and assembly interference.
3. Check each part for print orientation, unsupported geometry, thin walls, and excessive size.
4. Review drawings for dimensions, tolerances, notes, and BOM consistency.
5. Open STL files in the slicer and check scale, units, manifold errors, and estimated print time.
6. Record every issue as observation, consequence, and recommended correction.
7. Classify issues as release blocker, important correction, or optional improvement.
8. Meet with the designer and verify the top three actions.

Engineering Requirements

- Use the complete readiness checklist
- Identify at least five evidence-based observations
- Classify each issue by priority
- Check both CAD and slicer readiness
- Provide actionable corrections

Constraints & Safety

- Do not edit another student’s files directly
- Keep feedback professional and confidential within the class

• Do not approve a design with unresolved release blockers

Deliverables

• Completed readiness checklist

• Issue-priority table

• Slicer evidence

• Top-three correction summary

• Final release recommendation: ready, ready with corrections, or not ready

Reflection Questions

1. Which issue posed the greatest waste risk?

2. Which check was easiest to overlook?

3. How did the slicer reveal problems not obvious in CAD?

4. What would be on your personal preflight checklist?

Engineering Tip
Write findings as “Observed condition - possible consequence - recommended action.”

Common Mistake
A readiness review is not a style critique. Focus on issues that affect function, fabrication, inspection, or assembly.

Stretch Goal

Review the corrected package and document whether each release blocker was closed.

Career Connection

Manufacturing, configuration, and quality engineers review files before production to prevent defects and wasted resources.