

Engineering Drawing Makeover

Difficulty Intermediate	Time 60 minutes	Type Skill Builder
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Background

A manufacturing technician returned a drawing because it was incomplete, cluttered, and difficult to inspect.

Engineering Problem

Revise a weak engineering drawing so it communicates the part clearly and can be used for fabrication or inspection.

Learning Objectives

- Recognize missing drawing information
- Apply dimensioning standards
- Improve layout and readability
- Add appropriate notes and tolerances

Materials

- Instructor-provided weak drawing or prior student drawing
- Drafting tools or CAD drawing workspace
- Drawing checklist
- Engineering notebook

Procedure

1. Audit the drawing for missing views, dimensions, units, scale, title block information, notes, and tolerances.
2. Mark at least eight issues directly on a copy.
3. Choose the minimum set of views needed to define the part.
4. Rearrange the views for alignment and readable spacing.
5. Add or correct dimensions, avoiding duplication.
6. Add centerlines, hidden lines, hole notes, and detail views where needed.
7. Complete the title block and add general tolerances.
8. Use the checklist to perform a final self-inspection.

Engineering Requirements

- Correct at least eight identified issues
- Use consistent units and dimension style
- Include a complete title block
- Include enough views to define the part
- Use tolerances only where they support function or inspection

Constraints & Safety

- Do not change the part geometry unless the drawing reveals an impossible feature
- Keep the final drawing on one sheet

- Follow the class drawing standard

Deliverables

- Annotated original drawing
- Revised drawing
- Completed drawing checklist
- Short explanation of the three most important corrections

Reflection Questions

1. Which missing item created the greatest manufacturing risk?
2. How did you decide which views to keep?
3. Where did you use a tolerance and why?
4. How could an inspector use your revised drawing?

Engineering Tip

Every dimension should have a purpose: location, size, or relationship.

Common Mistake

Adding more dimensions can create conflicts. Avoid dimensioning the same feature in multiple places.

Stretch Goal

Exchange drawings with a partner and perform a blind completeness audit.

Career Connection

Mechanical designers and documentation specialists maintain drawings throughout a product's life cycle.