Missing Lines and Views
ENGR 1182
Graphics 05
Today’s Objectives

- Identify
  - Missing Lines
  - Missing Views
    - Orthographic and Isometric
- GP05 Activity
- GP05 Application
## Identifying Surfaces

<table>
<thead>
<tr>
<th>SURFACE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRINCIPAL</td>
<td>Correct size and shape in 1 view, edge/line in other 2 views</td>
</tr>
<tr>
<td>INCLINE</td>
<td>Characteristic shape in 2 views, edge/line in 1 view</td>
</tr>
<tr>
<td>OBLIQUE</td>
<td>Characteristic shape in 3 views</td>
</tr>
</tbody>
</table>
Visualization skills improve with being challenged to find errors in technical drawings. These errors include:

- **Missing Lines**
  - Visible, Hidden, Centerlines

- **Missing Views**
  - Orthographic and Isometric
Missing Lines
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Missing Lines

- Missing lines are a common problem in drawings, especially sketches done by hand.
- Missing lines can be visible, hidden, or centerlines.
Missing Lines

- Missing Lines are found by lining up views and comparing features
  - (similar to point, edge, surface tracking)

Where is this feature in the other views?
Missing Lines

- Line up the Features

Any other missing line?
Drawing Missing Lines

- Step 1: Align Vertices.
- Step 2: Find un-aligned vertices. This is where lines are missing!
- Step 3: Add missing lines.
Activity (GP05)

FIND AND DRAW IN THE MISSING LINES.
Missing Views
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Missing Views

- Missing views are a challenge for 3D visualization skills
- Using information in 2 orthographic views, the missing 3rd view can be determined
- Also the isometric can be drawn from the information found in the orthographic projections
Missing Views

- Missing Views (like Missing Lines) are also found by lining up views and comparing features
  - (again similar to point, edge, surface tracking)
Draw the Missing View

- Step 1: Project vertices.
- Step 2: Measure distances from Right Side View
- Step 3: Locate and connect corresponding vertices
- Step 4: Add hidden and center lines.

Or add 45 degree Miter Line To produce the same results!
Missing Isometric

- To create the isometric sketch from orthographic projections, use a form of “reverse” edge and point tracking
  - Step 1: Locate an anchor vertex or edge
  - Step 2: Continue to locate adjacent vertices and edges
  - Step 3: Add internal features (thru holes, centermarks, centerlines, etc.)
Sketch Missing Isometric

- **Step 1:** Choose an anchor surface.

- **Step 2:** Find and sketch in adjacent surfaces.
Activity (GP05)

GIVEN TWO ORTHOGRAPHIC VIEWS, SKETCH THE THIRD ORTHOGRAPHIC VIEW FOR EACH OBJECT. INCLUDE HIDDEN LINES AND CENTERLINES.
Important Takeaways

- Missing lines can be located by aligning vertices between orthographic views
- Missing lines can be visible lines, hidden lines, or centerlines
- Missing views can be determined by aligning vertices and edges between the 2 given orthographic views
- The missing isometric can be drawn with “reverse” point, edge, and surface tracking
What’s Next?

- Due Next Class: GP05 Application
- Reading Working Drawing Packets
  - Be able to collect and deduce information from an assembly and its working drawing packet
- Section Views
  - Distinguish between the types of section views
  - Identify basic characteristics of section views
- Take Graphics 6 Quiz on Readings