# Final Design Project - Final Written Report Grading Key

<table>
<thead>
<tr>
<th>Project Deliverables</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Product Description, Concept Sketches, Pugh Matrix &amp; PDS</td>
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<tr>
<td>• Complete set of documents</td>
<td>/2</td>
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<tr>
<td>• Clear narrative describing the ideation process and results</td>
<td>/4</td>
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<tr>
<td>2. Assembly Model</td>
<td></td>
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<tr>
<td>• Good, hardcopy shaded renderings</td>
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<tr>
<td>• Exploded/unexploded states</td>
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<tr>
<td>• Thoughtful choice of views, color added to parts</td>
<td>/5</td>
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<tr>
<td>3. Exploded Assembly Drawing with BOM</td>
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<tr>
<td>• Clear, orderly, exploded state, as line drawing printed in black and white</td>
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<tr>
<td>• No hidden lines</td>
<td></td>
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<tr>
<td>• Neat, organized balloons and Bill of Material</td>
<td></td>
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<tr>
<td>• BOM identifies off-the-shelf versus manufactured items</td>
<td>/5</td>
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<tr>
<td>4. Assembly Drawing with Cross-Sections</td>
<td></td>
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<tr>
<td>• Three orthogonal views with cutting planes identified on first sheet (small isometric reference view optional)</td>
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<tr>
<td>• Clear, large-scale cross-sections; each filling a separate page if clarity and scale requires it</td>
<td>/7</td>
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<tr>
<td>• Sufficient cross-section scale to see how parts mate together</td>
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<tr>
<td>• Black and white print, format correct, hidden lines optional</td>
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<tr>
<td>5. Detailed Engineering Drawings</td>
<td></td>
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<tr>
<td>• Drawings for all manufactured parts, fully-dimensional</td>
<td></td>
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<tr>
<td>• Hidden lines showing in all views except 3D isometric</td>
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<tr>
<td>• Center lines shown and no dimensioning to hidden lines</td>
<td></td>
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<tr>
<td>• Appropriate tolerances (ISO fits for moving parts)</td>
<td></td>
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<tr>
<td>• Text positioned outside part views, no overlapping text</td>
<td>/7</td>
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<tr>
<td>• Arrowheads not overlapping, flipped correctly and cleanly</td>
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<tr>
<td>6. Tolerance Analysis</td>
<td></td>
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<tr>
<td>• Radial/Diametral fits explained</td>
<td></td>
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<tr>
<td>• Axial fits explained along with worst-case tolerance calcs.</td>
<td>/5</td>
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<tr>
<td>7. Materials and Manufacturability</td>
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<tr>
<td>• Materials and Manufacturing methods with aPriori cost estimates in excel Manufacturing_BOM_Template.xls</td>
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<tr>
<td>• Catalog information shown for off-the-shelf items</td>
<td>/5</td>
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<tr>
<td>8. Complexity, Creativity &amp; Innovation</td>
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<tr>
<td>• Clear or novel concept with innovative designs</td>
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<tr>
<td>• Did the group challenge themselves with product or design complexity?</td>
<td>/5</td>
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<tr>
<td><strong>Total Grade</strong></td>
<td>/45</td>
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</tbody>
</table>

Note: Total is 100 pts. An additional 10% is allocated based on individual contribution to the project via the CATME evaluation; added to the final gradesheet.
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