**Table 1 Metrics used for assessing the students' use of DfAM in the design challenge and the DfAM consideration associated with each metric.**

| Metric | Score | | | DfAM Consideration |
|---|---|---|---|---|
| | *1* | *2* | *3* | |
| Part Complexity | Primitive geometry (ex. square, cylinder) | Complexity/curves that can be machined | Complex/curves that cannot be machined | AM designs can have complex geometries to improve performance as opposed to TM. |
| Assembly Complexity | Prismatic joint | Prismatic joints with locking features | Unidirectional joints with locking features | AM designs can have complex functional features such as assembly components. |
| Number of separate parts | | Number/value | | Designers can reduce part count by combining, thus reducing build time, assembly time and cost. |
| Part orientation | ZX/ZY (largest dimension in Z-direction) | XZ/YZ (second-largest dimension in Z-direction) | XY/YX (smallest dimension in Z-direction) | AM processes are typically slowest when printing in the z-direction. |
| Assembly feature orientation | ZX/ZY/XZ/YZ (critical mating features in X or Y planes) | | XY/YX (critical mating features in the Z-plane) | The orientation of a part affects its surface finish. Stair stepping is observed when rounded features are printed vertically (along X or Y planes) |
| Smallest feature size | | Value in mm | | AM processes have a minimum feature size that can the process can build (~0.5mm for material extrusion [71]). |
| Smallest tolerance | | Value in mm | | Adequate tolerances must be given between mating features. |
| Support material mass | | Value in grams | | AM designs with overhanging features need support material. Support material mass can be reduced using self-supporting angles and bridging limits. Internal cavities must have access for ease of support material removal. |
| Support material removal | Internal cavities with support difficult to remove | Easily accessible support material | No support material | |
| Largest build plate contact | | Value in $mm^2$ | | Large flat surfaces are prone to warping due to inadequate heat dissipation and thermal stresses. |