MMAN1130 – Design and Manufacture

CNC Machining Assessment Marking Criteria

Marking of your CNC Machining Assessment will be broken down in to two categories: CAM and Physical Compliance.

Table 1 - CAM Marking Criteria – 60% of overall grade. Total marks available for this section is 14 marks.

Criterion	0 Marks	1 Mark	2 Marks	3 Marks	4 Marks
Simulation Time	Simulation time exceeds 13 minutes	Simulation time is below 13 minutes.	Simulation time is below 12 minutes.	Simulation time is below 11 minutes.	Simulation time is below 10 minutes.
Appropriate CAM Strategy	No discernible logic applied to the presented CAM processes.	Key processes are missing that would significantly affect the dimensional compliance.	All key processes have been implemented but not as effectively as possible.	Careful consideration has been given to ensure strong dimensional compliance, particularly in finishing strategies.	[redacted]
Process Efficiency	No attempt has been made that considers efficiency.	Some processes have been optimised for either toolpaths or tool changes.	Most processes have been optimised for either toolpaths or tool changes.	All processes have been optimised for either toolpaths or tool changes.	All processes have been optimised for toolpaths and tool changes.
Compliance with endmill cutting rule: $\mathbf{1.1}\boldsymbol{DOC} * \boldsymbol{WOC} = \mathbf{0.2}$	Endmill processes clearly violate the cutting rule. Endmill will most likely break.	Some processes violate the cutting rule but are unlikely to break the endmill.	Most, if not all, processes appear to consider the cutting rule but there is some concern over compliance.	Endmill processes clearly comply with the cutting rule.	[redacted]

Table 2 – Physical Compliance Marking Criteria – 40% of overall grade. Total marks available for this section is 14 marks.

Criterion	0 Marks	1 Mark	2 Marks	3 Marks	4 Marks
Complementary Design Decisions	Complementary feature design was unable to accommodate the primary feature	Complementary feature design is excessively modified to accommodate the primary feature.	Complementary feature design modifies more than necessary to accommodate the primary feature.	Complementary feature design modifies the minimum to accommodate the primary feature.	
Dimensional Compliance (Note, a random feature will be selected for evaluation)	Feature dimensional compliance exceeds 0.4 mm.	Feature dimensional compliance is within 0.3 - 0.4 mm.	Feature dimensional compliance is within 0.2 - 0.3 mm.	Feature dimensional compliance is within 0.1 - 0.2 mm.	Feature dimensional compliance is within 0 - 0.1 mm.
Assembly of Parts and Classification of Fit	Parts are unable to be assembled.	Parts require significant force during assembly. It is not possible to disassemble parts by hand.	Parts are able to be assembled by hand. There is considerable travel in assembled state.	Parts are able to be assembled by hand. There is minimal travel in assembled state.	Parts are able to be assembled and disassembled by hand. There is no noticeable travel in assembled state.
Finish quality	It is clear that no finishing strategy has been applied.	Minimal finishing strategy. Surface finish is ok but may have inconsistencies in the implementation.	Surface finish is great in terms of roughness or aesthetic. Some edge breaks have been applied.	Surface finish is excellent in terms of roughness and aesthetic. Edge breaks have been applied where appropriate.	