Grading Rubric: LEGO Car Project

Group Number					
	WWU ID				
Team Member 1	**Member1**				
Team Member 2	**Member2**				
Team Member 3	**Member3**				
Team Member 4	**Member4**				
Project Grading Summary					
	Member1	Member2	Member3	Member4	
Percentage (out of 250 total points)	1	1	1	1	
Total Points	250	250	250	250	
Phase	**Points**	**Points**	**Points**	**Points**	
Proposal: Members, Feature List, Project Estimate, & Schedule	15	15	15	15	
Physical Lego Chassis, PPT Sketch Backdrop	10	10	10	10	
Concept Sketches for 2 Vehicle Concepts	10	10	10	10	
Concept Evaluation & Selection	10	10	10	10	
Refinement Drawing of Custom Block	10	10	10	10	
CATIA Assembly - Chassis	10	10	10	10	
CATIA Model - Custom Building Block	40	40	40	40	
FDM Toolpaths pack for Custom Blocks	10	10	10	10	
CATIA Assembly - Final Car	20	20	20	20	
CATIA Drawings - Final Assembly	20	20	20	20	
CATIA Drawing - Custom Block	20	20	20	20	
Project Report	20	20	20	20	
Assembled LEGO Car	10	10	10	10	
Self + Peer Evaluation	45	45	45	45	

1 Proposal					
Potential Points	15				
Basics					
Turned in on time?		-7			
Submitted as a multipage pdf?		-2			
Members Section					
Member Backgrounds?		-2			
Roles Identified?		-2			
Project Theme Chosen?		-1			
Feature List					
Key features Identified?		-2			
Features sorted in order of descending importance?		-2			
Marketing features?		-1			
Manufacturing Features?		-1			
Profitability Features?		-1			
Safety Features?		-1			
Assignment Features?		-1			
Product Backlog & Estimate					
All Intermediate Steps Identified?		-2			
Project Broken down chunks that take 8 hours or less?		-2			
All work assigned to individuals?		-2			
Hourly rate Determined?		-1			
Summary of Total Hours for Project?		-1			
Summary of Total Cost for Project?		-1			
Schedule					
Key deadlines Identified?		-2			
Gantt Chart Created?		-5			
Total Points	15				

2 Chassis, PPT Backdrop					
Potential Points	10				
On Time?		-5			
PPT Backdrop submitted as a PDF?		-2			
Chassis has 4 Wheels?		-2			
Chassis has 8 pieces?		-2			
Where appropriate, Chassis fills most of the interior space in the car? (Goal: minimize Custom block volume)		-2			
PPT Backdrop has a large isometric, top, front, and side views?		-3			
PPT Backdrop has space for concept name and individual name?		-2			
PPT Backdrop has white overlay?		-1			
PPT Backdrop has a neat, clean appearance?		-1			
Total Points	10				
3 Concept Sketches - Vehicle					
Team Member	Member1	Member2	Member3	Member4	
Potential Points	10	10	10	10	
2 Concept sketches/member submitted On Time?					-10
All sketches submitted as a single pdf?					-1
Sketches drawn on group's PPT backdrop?					-1
Concept matches the groups chosen theme?					-1
ISO, Top, Front, and Side Views completed?					-3
Dark, clearly visible outer sketch Lines?					-2
Sketch has Lines Separating Lego Blocks?					
Each Custom Lego block includes a Multi-Section Solid Feature and a Rib or Slot?					-3
4 Custom Lego blocks identified with notes or balloons? (Mirrored parts count as one custom block)					-1
Enough detail to model the car?					-2
Concept name and Personal name on Sketch?					-1
Total Points	10	10	10	10	

4 Concept Evaluation & Selection					
Potential Points	10				
On Time?		-5			
Evaluation submitted as a PDF?		-2			
Evaluation criteria derived from the proposal's feature list?		-2			
Features given points and ordered by prioirity?		-2			
Constraints identified and given yes/no evaluations?		-2			
Concept names on Evaluation match the names on the Concept Sketches?		-1			
Concept Evaluation compares only the top 4 Concepts?		-1			
Any "Combination" concepts have a new sketch included clearly showing how the two previous concepts are combined.		-2			
Ranking of concepts clearly indicated?		-2			
Final Selection indicated?		-1			
Appendix of 8 Concept Sketches attached in order of decending rank? (4 top sketches, then 4 sketches that weren't ranked)		-2			
Total Points	10				

5 Refinement Drawing - Custom Block					
Team Member	Member1	Member2	Member3	Member4	
Potential Points	10	10	10	10	
Submitted on time?					-2
All Block sketches submitted as a single pdf?					-1
1 Custom block sketch per person?					-10
Block name and Personal name on each Sketch?					-1
Top, Front, Side, and ISO view included? Views Labeled?					-2
Cross Section (showing wall thickness and draft) included?					-2
Each Custom Lego block includes a Multi-Section Solid Feature and a Rib or Slot?					-3
Cannot be modelled entirely using simple features such as pads, pockets, shafts, and grooves?					-4
Block can be injection molded?					-3
Enough detail to model the block?					-1
Interface with Chassis Blocks Defined?					-1
Overall Dimensions included?					-2
Dimensions of key features included?					-2
Consistent Wall Thickness Indicated?					-1
Mold Pull Direction Indicated?					-1
Drafted Surfaces Indicated?					-1
Minimum Feature Size of 0.060" observed?					-1
Material and Surface Finish Noted?					-1
Units indicated?					-1
Dark, clearly visible sketch Lines?					-2
Drawing is neat and clean?					-1
Total Points	10	10	10	10	

6 CATIA Assembly - Chassis					
Potential Points	10				
All parts present in a single folder?		-2			
Submitted on Time?		-2			
Is the Base component the best choice?		-2			
Is the Base component fixed in an appropriate orientation? (one that mirrors real life)		-2			
Does the Assembly order reflect the assembly order in real life?		-2			
Does the subAssembly structure reflect the subAssembly structure in real life?		-2			
Is the Assembly fully constrained?		-2			
Do the constraints reflect the design intent?		-2			
Are constraints or assembly features located in the proper Assembly/Subassembly?		-2			
Are there no broken constraints?		-2			
Are Assembly features used appropriately?		-2			
Are External references used or not used appropriately?		-2			
Assembly components don't clash or interfere with each other?		-2			
Total Points	10				
7 CATIA Model - Custom Block					
Team Member	Member1	Member2	Member3	Member4	
Potential Points	40	40	40	40	
Parts have been submitted with file names in the format "UserName_PartName.CATPart"					-40
Block cannot be easily modeled using simple features?					-10
Multi-Section Solid Feature present in the block?					-10
Rib/Slot feature present in block?					-10
Injection Moldable? (Design for Manufacturing) - 2° Draft on pull surfaces? - Constant Wall Thickness? - Min Feature Size 0.060 in? (1.5mm)					-5
Blocks assemble without interference to platform (meets Design For Assembly requirements)					-5
Total Points	40	40	40	40	

8 CATIA Assembly - Final Car					
Potential Points	20				
All parts present in a single folder?		-2			
Submitted on Time?		-2			
Is the Chassis present as a SubAssembly?					
Are the Custom blocks named with file names in the format "UserName_PartName.CATPart"?		-2			
Is the Base component fixed in an appropriate orientation? (one that mirrors real life)		-2			
Does the Assembly order reflect the assembly order in real life?		-2			
Does the subAssembly structure reflect the subAssembly structure in real life?		-2			
Is the Assembly fully constrained?		-2			
Do the constraints reflect the design intent?		-2			
Are constraints or assembly features located in the proper Assembly/Subassembly?		-2			
Are there no broken constraints?		-2			
Are Assembly features used appropriately?		-2			
Are External references used or not used appropriately?		-2			
Assembly components don't clash or interfere with each other?		-2			
Total Points	20				
9 FDM Toolpath Pack					
Potential Points	10				
Single Toolpack Submitted for group?		-2			
All parts included?		-2			
Parts grouped closely together in toolpath pack?		-1			
Toolpack Named using the format "GroupName_CarName_BuildVolume.gmb.gz"?		-1			
Parts oriented "hollow side up"?		-1			
No part features thinner than 0.060"?		-1			
Volume of support and Model material under 4 cubic inches?		-1			
Support and Model Volume Indicated on Lab Fee Sheet?		-1			
Lab Fee paid? Receipt attached to Lab fee sheet and submitted to Instructor?		-1			
Total Points	10				

10 CATIA Drawings - Assembly					
Potential Points	20				
Drawing has been submitted		-20			
Frame and titleblock with appropriate descriptive information present.		-2			
Proper views have been created.		-4			
Some major dimensions present on assembly drawing.		-2			
Proper isometric orientation has been used.		-1			
Adequate component spacing in isometric view on exploded view drawing. Overlap avoided.		-2			
Labeling of components is present on exploded view drawing.		-4			
BOM Table has been added.		-4			
Sizing and location of BOM table is appropriate.		-1			
Total Points	20				
10.5 CATIA Drawings - Custom Blocks					
Team Member	Member1	Member2	Member3	Member4	
Potential Points	20	20	20	20	
Drawings have been submitted					-20
Frame and titleblock with appropriate descriptive information present.					-5
Proper views have been created.					-5
Layout and scale(s) are appropriate.					-5
Appropriate dimensions have been included.					-5
Dimension properties are appropriate.					-5
Drawing is in general easy to read.					-5
Total Points	20	20	20	20	

11 Project Report					
Potential Points	20				
Report has been submitted.		-20			
Title page present.		-1			
Table of contents has been added.		-1			
Appendix has been added.		-1			
Quality of Executive Summary or Abstract.		-2			
Quality of Conclusion.		-1			
Identification of The Problem		-2			
Description of your design		-2			
Overview of the design concepts generated.		-2			
Description of the custom blocks that were created.		-2			
Discussion of how you built the prototype		-2			
Costing of the prototype.		-2			
Lessons that you learned.		-2			
Report Presentation					
Text formatting guidelines have been followed		-2			
Spelling and Grammar.		-2			
General writing style.		-2			
Total Points	20				
12 Prototype - Final Car					
Potential Points	10				
All parts present?		-2			
Parts fit together?		-2			
Parts not broken?		-2			
Tolerances appropriate? No big gaps?		-2			
Paint and Pride?		-1			
Total Points	10				
13 Self and Peer Evaluation					
Team Member	Member1	Member2	Member3	Member4	
Please describe your contribution to the project.					
Please describe the contribution of each of your team members.					
Out of 45 points, how many do you deserve?	45	45	45	45	0 to 45
Out of 45 points, how many do each of them deserve?	45	45	45	45	0 to 45
Out of 45 points, how many do each of them deserve?	45	45	45	45	0 to 45
Out of 45 points, how many do each of them deserve?	45	45	45	45	0 to 45
Average Points	45	45	45	45	