

Engineering Design Midyear Project CAD Vehicle Design

The goal of this project is to design a realistic vehicle with moving and animated parts using Creo 2 CAD. Points are earned for different parts, moving parts, types of motion, and animations (using servos).

	Milestone	Points	Description
1	Sketch	10	A hand-drawn isometric or oblique sketch of your proposed vehicle with notes indicating what parts will move, and which will be animated. This sketch may be delivered hand-drawn, or scanned and uploaded to Canvas. This must be submitted at least 24 hours before any other Milestone to receive credit.
2	Basic	35	A single assembly of at least 7 separate parts, at least 3 of which are different underlying parts; for example, a body, 2 axles and 4 wheels.
3	Wheel Motion	20	Multiple wheels (or equivalent) of your vehicle rotating together in an animation. Save and upload the “result set” (playback) .pbk file demonstrating all four wheels moving simultaneously. You will need to learn how to do this yourself from the documentation provided , although MrH will be available for questions.
4	Parts Realism	20+	Additional extrusions, projections, blends, and/or parts that <u>contribute significantly</u> to realism, designed functionality, and or “way coolness” of the vehicle. Up to 20 points can be earned as follows: <ul style="list-style-type: none"> • 1 each for first 10 significantly different features or parts • ½ each for next 10 • ¼ for each part or extrusion used multiple times In addition, there is a 5 point bonus for the first use of a new type of feature: sweep, blend, swept blend, or helical sweep in any part.
5	More Motion	20+	More moving parts, with different motions and animations that contribute to realism, designed functionality, and/or “way coolness”. At least 20 points can be earned as follows: <ul style="list-style-type: none"> • 5 each for first different motion (sliding window, hinged door, recoiling gun, linkage-based whacker, etc.) • 1 each for duplicated motions, including rotations (max 4 of each) • 5 each for each different animated motion (other profile functions and specifications) • 1 each for each animated motion used multiple times (max 4 of each)
	Print File	5	3D-printable STL and BFB files for your vehicle

	Render	5	An attractive .jpg showing your finished vehicle and your name
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Academic Integrity

All parts and assemblies must be your own work. If it resembles someone else's project, you may be required to make one or more specified changes to it by yourself in a short time to demonstrate that you indeed did the work yourself and understand how you did it.

You may not start from or include anyone else's CAD file, nor may you allow anyone else to modify or edit your files – if they use your keyboard or mouse when Creo is the active window, you have just violated this rule. You may view and download files from the web to “reverse engineer” them as long as you cite these sources explicitly with a text note on your own drawings, but must start your work with a new file, not a copy of it. You may use any tutorials you find online to help you with drawings, but again, you must cite these, and should be careful to modify the finished product significantly so as to avoid substantial resemblance to someone else's project taking advantage of the same tutorial.