

(30 pts) Approx. 3 days

The final part of our unit has you do some designing and engineering around improving an Automoblox car. We'll return to the same Automoblox car that you modeled in Autodesk last semester. (That way, you should still have some Autodesk files to get you going). You'll start with the reverse engineering process to learn about and understand your Automoblox car better. Then you'll brainstorm and design an improvement to your car before you 3D model it and we print it!

1. **Reverse Engineering:** Get your Automoblox car (the same one you worked with last semester) and complete a reverse engineering analysis of it. This must include: a **visual analysis, structural analysis, and functional analysis** of the car and its parts. Make sure that you record your reverse engineering analysis in your engineering notebook and complete a dismantling chart as you take apart your Automoblox car.
2. **Design Improvement:** Now you get to design, develop, and model your Automoblox car improvement! Follow these steps – recording in your notebook along the way – to design your improvement:
 - Brainstorm at least 10 design improvements to your Automoblox car
 - Pick an improvement you like and that you want to work on. Draw it carefully in your engineering notebook. Include proper dimensions.
 - Model your improvement carefully in Autodesk. It needs to be exactly the right sizes so that when we print it, it fits!
 - If possible, use your previous Autodesk model to assemble your improved Automoblox car. If everything was built correctly, then it should all fit together properly.
3. **3D Print:** With your Automoblox improvement modeled in Autodesk, the last step is to 3D print it! Get your improvement 3D printed, and then confirm that it fits your car and works as you intended!

Part 3: Tasks	5 points	4-3 points	2-1-0 points
 Reverse Engineer Automoblox	+ You did a visual analysis of your Automoblox car + You did a structural analysis of your Automoblox car + You did a functional analysis of your Automoblox car + You dismantled your Automoblox car, filling out a dismantling chart	- You missed some component of the reverse engineering process.	- You missed more than one component of the reverse engineering process.
 Design/Dimension Improvement	+You brainstormed and sketched ideas for improvements in your notebook + You clarified your Automoblox improvement with detailed designs in your notebook + You modeled your Automoblox improvement in Autodesk	- You did not record your product improvement process in your engineering notebook - You did not complete your Autodesk model	- Your improvement is poorly defined - Your Autodesk model is lacking or completely missing
 3D Print Improvement	+ We 3D Printed your Automoblox improvement + Your Automoblox improvement fits your car & works as intended	- Your 3D printed part does not work as intended	- Your 3D printed part is missing

