

General: For this assignment, you will design a roller coaster for an amusement park of your choice set in 1990. You should take care to make sure your coaster uses technology present in 1990 and is set in the version of the park open in 1990. You are encouraged to work in groups of two or three, but may work alone if you'd prefer.

Purpose: There are two main purposes of this assignment. One is to practice designing a roller coaster which fits well into a park and representing it as a layout diagram. This will be important for your final project. The other purpose is to force you to think carefully about what was possible two and a half decades ago and how that affects coaster design. It'll also get you to research the history of a park briefly.

How To: Select an amusement park which was operating in 1990. Find a description or park map of the park from 1990, as well as a brief history of the park. Looking at what existed in the park at the time, as well as the spirit of the park, select a roller coaster manufacturer, type, basic design, etc. Come up with a complete layout for your roller coaster and draw a layout diagram in the format specified. In addition, select details for your roller coaster (height, length, speed, inversions, etc) and write a paragraph justifying your choice of coaster for the park.

Required Parts: The following parts are required for your design

- Park History - A brief description of parks history, covering when it opened and significant additions. Can be in time-line form or paragraph.
- Coaster Stats - The coaster's name, wood or steel, manufacturer, type, height, length, speed, list of inversions (if any), number of trains, cars per train, and riders per car. Your height, length, and speed are just estimates (no calculations necessary), but your number of trains must be permitted by your block system.
- Layout Diagram - A layout diagram of your coaster which clearly describes the coasters layout and elements. Please follow the proper formatting for your layout diagram (see the course website for a description and example of proper formatting).
- Justification - A paragraph justifying your design. It should justify both why your design fits well into the 1990 version of your park as well as why your design fits well into the 1990 version of the roller coaster world (for the latter, you may wish to cite examples of real life coasters from that time). Ideally it would also match the manufacturers design style, but this early in the course it is alright if it doesn't.

Allowed Technology / Innovations: You are only allowed to use coaster innovations and elements invented before 1990. You cannot use future technology, like LSMs or hydraulic launches. You also can't use inversions like cobra rolls (which weren't invented until 1992). If you wish to use something not invented yet, email me and depending how much of a stretch it is I'll either allow it or ask you to think of something else.

Allowed Manufacturers: Your coaster must be made by one of the following manufacturers

- Arrow Dynamics
- Schwarzkopf (even though they were mostly defunct by 1990, pretend they still exist)
- Togo
- Dinn Corp / Dinn and Summers
- CCI (if you do this one, you may make your coaster for 1995 instead of 1990)

Design Freedom: Besides these constraints, you are free to pick what kind of coaster you like, and design it how you please. This assignment is more constrained than the final project is, but be sure to do something unique and interesting!

Submission: Submit all required parts as one file (.doc or .pdf) via email (to jzink@andrew.cmu.edu). If working in a group, only one member needs to email it, but please CC other members of the group.

Due Date: 11:59pm February 24th, or a week later for half credit.

Grading: The assignment is worth 100pts. There are 4 required parts, each worth 25pts. While mostly graded on completion, points will be taken away from coasters which do not follow the requirements, such as those using technology which didn't exist in 1990. If in a group, all students will receive the same grade regardless of contribution.

Above and Beyond: Research more about the park's history. Try a few different designs before setting on the one you turn in. Try doing the assignment for other years as well, like 1985 and 1995. What were the hot trends in the amusement industry in 1985? There are many ways to take this and run with it if you're interested.