

3D Computer Animation

Assessment 2

Term 1 18-19

Submission date: Friday 7th December by 13:30Hrs

Brief

You are required to work in teams of two or three. Each member of the team should produce a model of a steam driven tank engine (limited to four wheels) and a simple platform and rail track.

The group members between them should model a basic environment into which the models will be placed and animated. The environment should be reasonably flat with a length of linear rail track for each of the engines to run on.

The ground plane on which the rail runs should be slightly uneven, i.e. 'bumpy', but the track should be flat. The team members should decide between them how this should be modelled and textured. At the point where the vehicles will be animated from and the point at which they should stop, there should be platforms.

You are each required to submit a series of still renders and an animation of the individual objects, a short report, and, as a group, renders of the terrain and a video of the animation of the objects.

In summary

Submitted by each individual:

- Report
- 1 animation of the locomotive model
- At least 3 still renders of the locomotive
- 2 still renders of the rail and platform objects

Submitted as a group:

- 1 animation of the locomotives going over the track
- 3 still renders of the terrain

Details of what is expected follow below.

Report

Along with the animation and the renders, each student should write a short report detailing exactly which models they made, and what problems they had in the construction and texturing of the models. They should also record problems (if any) in the group and how these were overcome. The report should be no longer than 1-2 A4 pages and should be included as an electronic submission with the animation and the models.

Animation

Group:

The vehicles should be animated moving along the track. It should be possible in the animation to see the piston rods, connecting rods and other linked objects moving together, while the wheels should turn in synchronised fashion with the rods and rotate at a velocity where the forward distance travelled matches the circumference.

The distance travelled should be no less than six times the length of the locomotive. The animation should last no more than 20 seconds, with the vehicles starting from a static position, level with one another, easing out into a straight run down the track, coming to a smooth halt at the end platform. One locomotive should arrive before the others.

Lighting

The entire scene should be lit with the Arnold Physical Sun and Sky. There should be no need for any further lighting. If you wish to experiment with lights, discuss it with the lecturer first.

Individual:

Each individual student should also submit an animation of a close up of the mechanism of their vehicle running (on the spot, there's no need to move the vehicle along a length of track). The render may be a play blast and should show engine components moving, and driving the wheels. The animation should last no more than 6 seconds.

Rendering

The animation should be rendered as a sequence of still images and converted to a video format. The resolution of the render should not be more than 1280x720 pixels. The video codec should allow for a high level of compression to keep the file size as small as possible, while retaining as high a level of quality in the image as possible.

Still renders at a minimum resolution of 1920x1080

Group: three still renders of the terrain, platform and rail, from different angles.

Individual: three still renders of each of the students main model from the following angles: one side view, one $\frac{3}{4}$ view from the rear, one $\frac{3}{4}$ view from the front.
Two still renders of the terrain object (road or rail, or station platform) that they worked on.

All renders should be well lit.

Splitting the work up and marks allocation

The work on each of the prime individual models should be done entirely by the student who has chosen the specific model – the mark for this part of the assessment will go to the student to whom the model belongs. The terrain modelling should be split equally among the students – the marks for this part of the assessment will go to all group members. The marks for the

overall animation will also go to all group members. The marks for the individual prime object renders will go to the individual students.

The group should organise the overall lighting of the scene and initial camera placement so that all members can place their own object into the scene for animation independently of the other. On completion of the animation both students should assemble the final animation for submission electronically in a **compressed** video format (using the XVID codec).

This assessment is worth 50% of the overall mark for the module. The marking for this assessment is broken down roughly as follows: 65% for the individual models and individual animation, 20% for the group model, 10% for the way in which the separate areas of the animation, camera and lighting come together, 5% for the report. Approximately 75% of the mark is for the individual effort.

Submission

You should submit the animation of the vehicles, the still renders at different viewing angles of the principle model(s) for each student at a resolution of no less than 1920x1080, the reports from each of you, and the completed models and scene files as a zip file.

Individual submissions should be named as follows:

`yourLastName_yourFirstName_bannerID_image1.jpg` (from image 1 to 5 for all stills)

`yourLastName_yourFirstName_bannerID_animation.avi` (for the individual animation)

`yourLastName_yourFirstName_bannerID_Report.doc` (for the report which can also be .docx or .pdf)

For the group submission:

`groupX.avi` (for the final animation, where 'X' is your group number)

`groupX_image1.jpg` (for the terrain renders, where 'X' is your group number and the images are named image1, image2 and image3)

Submission deadline

The completed work should be submitted electronically via Moodle by the date and time specified at the start of this document. You must use an encoding method (codec) for the video file that will keep the file size below 90 megabytes, to allow for easy upload.

Do not leave everything until the week before the deadline.