UNIVERSITÄT PADERBORN
Die Universität der Informationsgesellschaft

Advanced Rendering Assignment sheet 5 – ST 2013
Prof. Dr. Gitta Domik, Stephan Arens
In Lab on May 15 to 18 – Homework due to May 24, 9:15
(Send homework to stephan.arens@upb.de)

Bézier curves and surfaces

Assignment 14

1. Download the Bézier template and draw a Bézier curve based on the control points provided in the array `CTRL_POINTS`.
    a. Use the method `glMap1f` to bind the control points to an evaluator.
    b. Activate the evaluator with `glEnable(GL.GL_MAP1_VERTEX3)`
    c. Start to draw a `GL_LINE_STRIP` and use the evaluator method `glEvalCoord1f(int u)` inside a for loop to automatically create vertices.
2. Now use `glMapGrid1f` and `glEvalMesh1` instead of the for loop.
3. Use `GL_POINTS` to make the control points visible.

- **Homework:** Send 1 screenshot similar to the left image underneath.

Assignment 15

Use the control points provided in the array `CTRL_POINTS_3D` to create a Bézier surface.

1. Try the for loop approach with the method `glEvalCoord2f` to create a wireframe Bézier surface.
2. Use `glMapGrid2f` and `glEvalMesh2` to create a filled Bézier surface.
3. Load "crate.png" as a texture and texturize the Bézier surface. The array `TEX_POINTS` contains the necessary texture coordinates which can be added to the evaluator by using `glMap2f(GL.GL_MAP2_TEXTURE_COORD_2, …)`

- **Homework:** Send 1 screenshot similar to the right image underneath.