

A14 – Smooth objects

The goal of the application contained in `A14.cpp`, is to create 3 objects: a cube, a functional surface, and a cylinder. The surface is defined by equation $y = \sin(x) * \cos(z)$ with $-3 \leq x \leq 3$ and $-3 \leq z \leq 3$. Models are created in file `primGen.hpp`. Primitives are encoded as indexed triangle lists, following the format seen in the file.

All meshes, except the cube, should be generated by an algorithm (which requires at least two nested loops are required). Below you can see a picture of the expected result. The cube might instead be manually defined. Below you can see a picture of the 3 objects. For what concerns the surface, this tutorial:

<https://www.khanacademy.org/math/multivariable-calculus/integrating-multivariable-functions/flux-in-3d/articles/a/unit-normal-vector-of-a-surface>

might help in finding the correct normal vector direction. Key N toggle the view, showing a color coded version of the normal vector in each point of the object, while SPACE changes the object.

