University of Birmingham

Computer Science Year 2

Faisal IMH Alrajhi

Year 2 Study Guide

Contents

Chapter 1

Graphics

1.1 Surface Geometry

This section covers the basics introduced in how to represent shapes in a computer.

1.1.1 Definitions

- Vertex: A point with three numbers representing its XYZ position in a plane
- Edge: An edge is the difference between two vertices; the segment connecting them
- Surface: A closed set of edges representing a face of a 3D object
- Polygon: A shape in space usually representing by a set of surfaces (other methods listed below)
- Polygon Table:

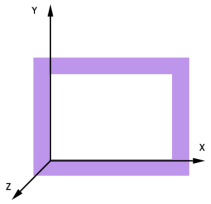

Figure 1.1: Coordinate system assumed throughout module

When speaking about shapes, we will always assume to be using a right-handed coordinate system. It is named "right-hand" due to the position of the thumb when taking your right hand, placing it on the positive x-axis, the positive z direction will be the direction of the thumb. Right hand just means the thumb is pointed outwards/towards the viewer, so positive z-axis will be towards the viewer.

1.1.2 Examples

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1.1.3 Further Sources

1.2 Transforms

1.3 Lighting

1.4 Projection

1.5 Texture Mapping

1.6 Past Exam Practice