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OpenGL Training

Course#:MA-04
Duration:3 Days
Price:500.00

Course Description

OpenGL Course

OpenGL stands for Open Graphics Library and it is one of the most popular 3D graphics APIs. OpenGL is a multi-platform and cross-language API with a primary objective of rendering 2D and 3D computer graphics. It is one of the oldest API being used in 2D and 3D graphic applications, covering a broad set of rendering, special effects, and other visualisation functions.

KnowledgeHut Academy is offering OpenGL online course designed specifically for writing graphics applications, and test cases with OpenGL ES. The OpenGL training will be beneficial for both driver and application developers. The course is focused on OpenGL v1.1 and ES v2.0 for embedded systems development, along with an in-depth understanding of the OpenGL ES API and graphics pipeline. Register for the course in your preferred training mode and earn the OpenGL certification on completion of course.

Features of OpenGL

OpenGL generates high-quality color images by rendering with geometric and image primitive.
The interactive applications including 3D graphics uses OpenGL.
With OpenGL, graphical applications can create the same effect in any operating system.

Objectives

Basics of OpenGL with standard libraries and terminologies.
OpenGL Embedded System versions and programming structure.
Animations and drawing for 2D and 3D images.

About EGL and How to use EGL in OpenGL.
GLSL and Programmable Pipeline
Using Pixel and Frame Buffer Objects

Audience

Graphic designers or software developers who want to get into gaming or designing will find this course useful.

Prerequisites

Participants are expected to have basic knowledge on programming languages like C,Java,Lisp and JavaScript in order to learn OpenGL.

Content

Module 1: Introduction

What is OpenGL?
Standard libraries and headers
Terminologies in OpenGL
Rendering Pipelines
Programmable vs Fixed pipelines
3D Graphics Pipeline

Module 2: OpenGL ES

Introduction to OpenGL ES
Difference between OpenGL and OpenGL ES
Versions of OpenGL ES
OpenGL ES program structure

Module 3: Animation and Drawing Basics

Timers and Double Buffering

2D and 3D and Normalized Coordinate System
Drawing and Managing States
Drawing Primitives - Points, Lines, Triangles, Vertex arrays and Buffer Objects

Module 4: EGL

Introduction and Initialization
EGL Rendering context
How to use EGL in OpenGL

Module 5: Colors and Viewing

RGBA vs Color Index
Color Shade model
Projection, Viewport, Viewing and Modeling Transformations
Clipping planes and Culling
How to remove Hidden Surface

Module 6: Texture Mapping and Vertex Shader

Shader Basics and Simple Shader example
Basics of Texture and Vertex Shader
Loading Textures
Objects and Filtering Textures
Customized Vertex Transformation

Module 7: Alpha Blending and Images

Blending Basics and Equation
Imaging Pipeline

Pixmaps and Bitmaps

Module 8: GLSL and Programmable Pipeline

Introduction to GLSL and Programmable Pipeline
Difference between Programmable Pipeline and Fixed Function
OpenGL Shader programming model

Module 9: Framebuffer

Framebuffer Components
Accumulation and Stencil Buffer

Module 10: Pixel and Frame Buffer Objects

Introduction to PBOs and FBOs
Offscreen Rendering
Using Pixel and Frame Buffer Objects

Module 11: Optimization

Performance Optimization
Introduction to Bottlenecks and How to avoid it