

Computer Graphics

Course Name	Course type (credit/hours)	Elective course(3/3)	Course code	F029
	Target students Division/major/grade	Software and Computer Engineering/Senior	Opening semester	2018 1ST SEMESTER
	Class time and classroom	Mon C(Pal111)Wed C(Pal111)	English Grade	A(100%English)
Reference to this course	Prerequisite courses	자료구조 (Data Structure)		
	Related basic courses	선형대수 (Linear Algebra)		
	Recommended concurrent courses			
	Related advanced courses			

Instructor	Name (title/division)		Hwanyong Lee(Associate Professor, Software and Computer Engineering)		
	Office Room Number	Paldal 704	Office phone Number	3858	e-mail
	Office hours	2 hours after class		Homepage address	
Teaching Assistant	Name (title/division)				
	Office Room Number		Office phone Number		e-mail

1. Introduction

Computer Graphics is a engineering subject for generating pictorial information from numerical information. Mathematics, Physics, Cognitvne science are base of computer graphics and it is applied to CAD, medical imaging, AR, VR, Gmae, Animation and etc.

Topics of this class are

- basic theories - multimedia, color theory, geomtric modeling, motion, vector.
- modern computer graphics system - hardware and software including GPU, API's
- Graphics API - OpenGL ES

Objective of the subject is; "Student can generate image using graphics API"

2. Course Objectives

삼차원 컴퓨터 그래픽스의 기본 개념을 이해하고 이를 구현할 수 있는 능력을 기른다. 또한 그래픽스 라이브러리 중의 하나 인 OpenGL ES를 사용하여 삼차원 그래픽스를 기반으로 한 간단한 응용 프로그램을 구현할 수 있도록 한다.

Understanding basic theory of computer graphcis, and practice to implement using graphics API.

Major API used in class is OpenGL ES - Practice to render OpenGL ES simple application

3. Class types and activities

Theroy 50% / Lab 50%

4. Teaching Method

- | | |
|---|---|
| <input checked="" type="checkbox"/> lecture | <input type="checkbox"/> discussion and debate |
| <input checked="" type="checkbox"/> team project(presentation and case studies) | <input checked="" type="checkbox"/> experiments(role-playing,etc) |
| <input type="checkbox"/> designing and production | <input type="checkbox"/> on-site learning(on-site training) |
| <input type="checkbox"/> others | |

5. Support Systems in Use

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> AjouBb | <input checked="" type="checkbox"/> automatic recording system | <input type="checkbox"/> web-based assignment |
| <input type="checkbox"/> cyber lecture | <input checked="" type="checkbox"/> online content | |
| <input type="checkbox"/> class behavior analyzing system | <input type="checkbox"/> others | |

6. Teaching Tools

- | | | |
|--|---|---|
| <input type="checkbox"/> PBL(Problem Based Learning) | <input type="checkbox"/> CBL(Case Based Learning) | <input type="checkbox"/> TBL(Team Based Learning) |
| <input type="checkbox"/> UR(Undergraduate Research) | <input type="checkbox"/> FL(Flipped Learning) | <input type="checkbox"/> DSAL(Data Science Active Learning) |
| <input type="checkbox"/> others | | |

7. Knowledge and ability required for taking this course

C/C++ 프로그래밍 능력, 자료구조에 대한 이해, 선형대수학 수강은 도움이 됨

Requires – C/C++ Programming, Data Structure
Linear Algebra is helpful.

8. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance		10	Attendance + Class Activity
midterm exam		20	
final exam		30	
quiz			
presentation			
discussion			
homework		40	Homework 4x5 / Final Project 1x20
etc			중간고사 혹은 기말고사 결시 시, F
study hours			

9. Textbook and supplementary material

Main/Sub	Title (Web-site)	Writer	Publisher	Publication year
Ref.	Interactive Computer Graphics A Top-Down Approach with WebGL : Global Edition	Edward Angel	Pearson	2015
Ref.	OpenGL ES Programming Guide	Ginsberg	Addison Wesley	2015
Main	수업시간 자료 배포 예정			

10. Class system and Class shedule

<ol style="list-style-type: none"> 1. 컴퓨터 그래픽스 소개 2. 이차원과 삼차원 그래픽스 기본 이론 3. 삼차원 그래픽스 고급 이론 4. 최근 연구 동향 소개

< Class Schedule >

* language : K-korean, E-English

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
1	Introduction to computer graphics (+ mathematics for computer graphics)	K	Hwanyong Lee			
2	graphics programming	K	Hwanyong Lee			
3	graphics primitives	K	Hwanyong Lee			

< Class Schedule >

* language : K-korean, E-English

Week s	Topics	lang uage	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
4	geometric transforms	K	Hwanyong Lee			
5	geometric transforms	K	Hwanyong Lee			
6	viewing (graphics pipeline)	K	Hwanyong Lee			
7	viewing (graphics pipeline)	K	Hwanyong Lee			
8	midterm	K	Hwanyong Lee			
9	Illumination and shading	K	Hwanyong Lee			
10	Illumination and shading	K	Hwanyong Lee			
11	texture mapping	K	Hwanyong Lee			
12	shadows	K	Hwanyong Lee			
13	global illumination	K	Hwanyong Lee			
14	antialiasing	K	Hwanyong Lee			
15	curves and surfaces	K	Hwanyong Lee			
16	final exam	K	Hwanyong Lee			

11. Other items of notification