Model No.12
Course Specifications : Computer Graphics

Shoubra
Faculty of
Engineering

Alfarabi for Quality Assurance and Accreditation System - at 19/12/2013 3:48 PM

University : Benha university

Faculty : Shoubra Faculty of Engineering

Department : Electrical Engineering Department

1- Course Data

Course Code : ECE411C	Course Title : Computer Graphics	Study Year : Fourth Year

Specialization :
Teaching Hours:

Lecture : 3	Tutorial : 2	Practical :

2- Course Aim

For students undertaking this course, the aims are to:

2.1- The manipulation and display of geometric information is at the heart of many computer applications and graphical output plays an important part of modern Human - Computer interactions. The aim of this course is to show how to generate, manipulate and display graphical images.

3- Intended Learning Outcomes of Course (ILOS)

a- Knowledge and Understanding

On completing this course, students will be able to:
a-1- study theories and mathematics of computer graphics. (a-1)
a- 2- Identify the principles of designing the elements related to graphics systems.(a-4)
a- 3 - Understand the methodologies of 2D and 3D transformations.(a-5)

b- Intellectual Skills

At the end of this course, the students will be able to:
b- 1 – Analyze the required mathematical methods for modeling the graphical problems. (b-1)
b- 2 - Solve and design the graphical problems in a creative way. (b-3)
b- 3 - Combine, exchange, and assess different ideas, views, and knowledge from a range of sources. (b-5)
b- 4- Select, synthesize, and apply suitable IT tools to computer graphics problems.(b-8)

c- Professional Skills

On completing this course, the students are expected to be able to:
c-1 -Apply the required mathematics and technologies to solve graphical problems.(c-1)
c- 2 -Merge the engineering knowledge to improve the design of graphics systems. (c-2)
c- 3 -Design the component of graphicals system, and carry out specialized engineering designs.(c-3)

c- 4 -Use appropriate computer graphics software. (c-14)

c- 5- Write professional computer programs to achieve software quality measures in.(c-15)

d- General Skills

At the end of this course, the students will be able to:

d- 1 – Work effectively in team works.(d-1)

d- 2 - Work in hard circumstances. (d-2)

d- 3 – Communicate with the team members effectively (d-3)

d- 4 - Demonstrate efficient IT capabilities. (d-4)

d- 5 - Lead team members.(d-5)

d- 6 - Refer to relevant literatures. (d-9)

4- Course Contents

No.	Topics
1	Introduction to the capabilities of a popular graphics package
2	Mathimatics used in Computer graphics
3	Raster algorithms
4	2D and 3D Transformations
5	Concepts of 2D Viewing
6	Hidden surveces elimination algorithms
7	Survace shading

5- Teaching and Learning Methods

5.1- Lectures

5.2- Seminar / workshop

5.3- Class activity

5.4- Case study

5.5- Assignments / homework

6- Teaching and Learning Methods of Disables

6.1- not available

7- Student Assessment

a- Student Assessment Methods

1	Assignments to assess knowledge and intellectual skills.
2	Quiz to assess knowledge, intellectual and professional skills.
3	Mid-term exam to assess knowledge, intellectual, professional and general skills.
4	Oral exam to assess knowledge and intellectual skills.
5	Final exam to assess knowledge, intellectual, professional and general skills.

b- Assessment Schedule

No.	Assessment	Week
1	Home Assignments	2, 5, 9, 11
2	Quizzes	4, 6, 10, 12
3	Mid-term exam	8
4	Oral exam	14
5	Final exam	15

c- Weighting of Assessments

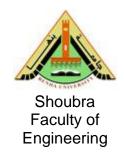| Assessment	Weight
Mid_Term Examination	10 %
Final_Term Examination	60 %
Oral Examination	20 %
Practical Examination	0 %
Semester work	0 %
Other types of assessment	10 %
Total	100 %

8- List of References

a- Books
1- Peter Shirley,Michael Ashikhmin and Steve Marschner - Fundamentals of computer graphics, 2nd edition - 2009

b- Recommended Books
1- Francis S Hill Jr. and Stephen M Kelley- Computer Graphics using OPEN GL 2nd Edition - 2006

- Course Coordinator :   Dr. Magdy Talaat Abd El Megid El Arabawy

- Head of Department :   Prof/ Sayed Abo-Elsood Sayed Ward

Model No.11A
Course Specifications : Computer Graphics

University : Benha university

Faculty : Shoubra Faculty of Engineering

Department : Electrical Engineering Department

Matrix of Knowledge and Skills of the course

N o.	Topics	we ek	Basic Knowledge	Intellectual Skills	Professional Skills	General Skills
1	Introduction to the capabilities of a popular graphics package.	1	a1,a2,a3			
2	Mathimatics used in Computer graphics	2,3		b1 ,b2	c1,c2	
3	Raster algorithms	4,5		b1 ,b2	c1,c2,c3, c4 c5	d1
4	2D and 3D Transformations	6,7		b1 ,b2	c1,c2,c3, c4, c5	d1, d3, d6
5	Concepts of 2D Viewing	9,10		b1, b2,b3,b4	c1,c2,c3,c5	
6	Hidden surveces elimination algorithms.	11, 12		b1, b2,b3,b4	c1,c2,c3,c5	
7	Survace	13,		b1,	c1,c2,c3,c5	d2,d3,d

	shading	14		b2,b3,b4		4

course ILOS VS Program ILOS:

	A4	A5	A18	B3	B4	B14	C14	C15	D9
A1	√								
A2		√							
A3			√						
B2				√					
B3					√				
B4						√			
C4							√		
C5								√	
D5									√

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Matrix of course content and ILO's

Course Code : ECE411C   Course Title : Computer Graphics

Lecture: 4 **Tutorial** :2 **Practical**:- **Total:** 6

Program on which the course is given: B.Sc. Electrical Engineering (computer engineering)

Major or minor element of program: major

Department offering the program: Electrical Engineering Department

Department offering the course: Electrical Engineering Department

 Academic year / level: 2012-2013 first semester

Date of specifications approval: 10/5/2006

Course content	2.a.1	2.a.2	2.a.3	2.a.4	2.b.1	2.b.2	2.b.3	2.b.4	2.b.5	2.b.6	2.c.1	2.c.2	2.c.3	2.c.4	2.c.5	2.d.1	2.d.2	2.d.3
Introduction to the capabilities of a popular graphics package.	✓	✓	✓															
Mathimatics used in Computer graphics					✓	✓					✓	✓						
Raster algorithms						✓	✓	✓			✓	✓	✓	✓	✓	✓		
2D and 3D						✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Transformations																	
Concepts of 2D Viewing				✓	✓	✓	✓			✓	✓	✓		✓			
Hidden surveces elimination algorithms.				✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓
Survace shading				✓	✓	✓	✓										

Matrix of course aims and ILO's

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Course aims	2.a.1	2.a.2	2.a.3	2.a.4	2.b.1	2.b.2	2.b.3	2.b.4	2.b.5	2.b.6	2.c.1	2.c.2	2.c.3	2.c.4	2.d.1	2.d.2	2.d.3
show how to generate, manipulate and display graphical images.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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