جامعة: دمياط
كلية: العلوم
قسم : الرياضيات

توصيف مقرر دراسي فصل ثاني

١- بيانات المقرر		
الرمز الكودي : ٣٠٩ س	**اسم المقرر :** رسومات الحاسب	**المستوي:** الثالث
التخصص : علوم الحاسب	**عدد الوحدات الدراسية :3** **نظري :** ٢	**عملي :** ٢

٢- هدف المقرر :	By the end of this course the student must be able to: 1. Introduce the essentials background of the visible surface detection algorithms. 2. Study the reflection and illumination models. 3. Study rendering algorithms for 3-D objects. 4. Demonstrate parametric representation of 3-D objects. 5. Apply shadows algorithms, 2-D texture mapping, 3-D texture mapping, Ray tracing, volume rendering, and anti-aliasing. 6. Introduce fractals and 3-D computer animation. 7. Color space in computer graphics.
٣- المخرجات التعليمية المستهدفة من المقرر:	
أ. المعلومات والمفاهيم :	By the end of this course the student must be able to: a1. Overview on Visible surface detection algorithms. a2. Explain the reflection and illumination models. a3. Discuss algorithms for 3-D objects. a4. Explain parametric representation of 3-D objects, 3-D computer animation, and color space in computer graphics. a5. Investigate: shadows algorithms, 2-D texture mapping, 3-D texture mapping, Ray tracing, volume rendering and anti-aliasing.
ب. القدرة الذهنية:	By the end of this course the student must be able to: b1. Analyze visible surface detection algorithms, rendering algorithms for 3-D objects, Shadows algorithms, 2-D texture mapping, 3-D texture mapping. b2. Revise the concepts of applications of computer graphics. b3. Design 3-D models. b4. Analyze image processing. b5. Develop some real objects (e.g.: animation and games)
ت. المهارات المهنية الخاصة بالمقرر:	By the end of this course the student must be able to: c1. Implement 3-D designing and developing concepts. c2. Apply 3D programming. c3. Design 2-D and 3-D modeling.
ث. المهارات العامة :	By the end of this course the student must be able to: d1. Use information and communication technology effectively. d2. Think independently, set tasks and solve problems on scientific basis. d3. Work as a team member effectively, manage time, collaborate and communicate with others positively.

٤ـ محتوى المقرر :

Part I:

مجموع	عملي	تمرين	نظري	أسبوع	المحتويات	م
registration						1
2	0	0	2	2	Introduction to Visible surface detection algorithms.	2
2	0	0	2	3	The reflection and illumination models.	3
2	0	0	2	4	Rendering algorithms for 3-D objects.	4
2	0	0	2	5	Parametric representation of 3-D objects.	5
2	0	0	2	6	3-D computer animation.	6
Mid Term Exam						7
2	0	0	2	8	3-D computer animation.	8
2	0	0	2	9	Color space in computer graphics.	9
2	0	0	2	10	Shadows algorithms.	10
2	0	0	2	11	2-D texture mapping.	11
2	0	0	2	12	3-D texture mapping	12
2	0	0	2	13	Ray tracing	13
2	0	0	2	14	Volume rendering. Anti-aliasing; Fractals and 3-D computer animation	14

Part II: Practical

مجموع	عملي	تمرين	نظري	أسبوع	المحتويات	م
registration						1
1	2	0	0	2	Write a program to draw points on a plane in OpenGL	2
1	2	0	0	3	Write a program to draw a line on plane in OpenGL.	3
1	2	0	0	4	Write a program to draw circle on plane in OpenGL.	4
1	2	0	0	5	Write a program draw a white rectangle on a black background in OpenGL.	5
1	2	0	0	6	Write a program to draw a square when we click on the mouse button in openGL	6
Mid Term exam						7
1	2	0	0	8	Write a program to draw a color cube and spin it using open GL transformation matrices in OpenGL.	8
1	2	0	0	9	Write a program to create a house like figure and rotate it about a given fixed point using OpenGL functions in OpenGL.	9
1	2	0	0	10	Write a program to implement the Cohen-Sutherland line clipping algorithm. Make provision to specify the input line, window for clipping and viewport for	10

					displaying the clipped image in OpenGL	
1	2	0	0	11	Write a program to fill any given polygon using scan line area filling algorithm in OpenGL.	11
1	2	0	0	12	project	12
1	2	0	0	13	project	13
1	2	0	0	14	project	14

٥- أساليب التعليم والتعلم :

1. Lectures
2. Practical
3. Discussion

٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة:

لقاءات فردية – تيسيرات علمية – تعاون شخصي – نقاش علمي

٧- تقويم الطلاب :

أ. الأساليب المستخدمة:

Types	Assessment
Oral exam	d1,d2,d3
Practica exam	c1,c2,c3
Final exam	a1,a2,a3,a4,a5, b1,b2,b3,b4,b5

ب. التوقيت:

Assessment 1	Midterm exam	Week 7
Assessment 2	Practical exam	Week 14
Assessment 3	Oral exam	Week 15-17
Assessment ٤	Final exam	Week 15-17

ت. توزيع الدرجات

Oral examination:	5 %
Practical/laboratory examination:	25 %
Mid-term exam:	10 %
Final term examination:	60 %
Total:	100 %

٨- قائمة الكتب الدراسية والمراجع :

أ. مذكرات :

Lecture notes prepared by academic staff members in the department.

ب. كتب ملزمة :

Donald Hearn," Computer graphics with open GL ", 2004

ج. كتب مقترحة:

1. Buss, Samuel R. *3D Computer Graphics: A Mathematical Introduction with OpenGL*. 2003. ISBN: 9780521821032
2. Shirley, Peter, Michael Ashikhmin, Steve Marschner. *Fundamentals of Computer Graphics*. 3rd ed. A K Peters/CRC Press, 2009. ISBN: 9781568814698.

د. دوريات علمية أو نشرات ... الخ