

TED UNIVERSITY, COURSE SYLLABUS

Faculty	Engineering and Architecture	Department	CMPE
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Course Code & Number	CMPE 360	Course Title	Computer Graphics
Type of Course	<input checked="" type="checkbox"/> Compulsory <input type="checkbox"/> Elective	Semester	<input checked="" type="checkbox"/> Fall <input type="checkbox"/> Spring <input type="checkbox"/> Summer
Course Credit Hours	(3+0+0) 3	Number of ECTS Credits	5
Pre-requisite	N/A	Co-requisite	N/A
Mode of Delivery	<input checked="" type="checkbox"/> Face-to-face <input type="checkbox"/> Distance learning	Language of Instruction	<input checked="" type="checkbox"/> English <input type="checkbox"/> Turkish
Course Coordinator	Asst. Prof. Dr. Gizem Akinci	Course Lecturer	Asst. Prof. Dr. Gizem Akinci
Required Reading	Peter Shirley, Michael Ashikhmin, Steve Marschner, Fundamentals of Computer Graphics, 3 rd Ed.	Course Assistant(s)	--

Course Catalog Description	Advanced application of computer graphics techniques. Shading. Deformation. Ray tracing. Radiosity. Texture mapping. Concepts of motion are introduced for the generation of digital animation. Concepts of graphical workstation design, especially with respect to user interfaces and window managers are introduced.
Course Objectives	The objective of this course is to introduce the mathematical foundations of computer graphics, various computer graphics techniques, and implementation tools used in generating computer graphics.
Course Learning Outcomes	Upon succesful completion of this course, a student will be able to <ol style="list-style-type: none"> 1. Model a computer graphics scene 2. Use a graphics library for implementing computer graphics 3. Use various techniques of computer graphics for rendering life-like scenes 4. Design efficient and friendly user interfaces 5. Compute mathematical and physical properties of graphical scenes 6. Use advanced CG techniques such as shaders for rendering scenes
Course Contents	Advanced application of computer graphics techniques. Shading. Deformation. Ray tracing. Radiosity. Texture mapping. Concepts of motion are introduced for the generation of digital animation. Concepts of graphical workstation design, especially with respect to user interfaces and window managers are introduced.

Teaching Methods & Learning Activities	<input checked="" type="checkbox"/> Telling/Explaining <input checked="" type="checkbox"/> Discussions/Debates <input checked="" type="checkbox"/> Questioning <input checked="" type="checkbox"/> Reading <input type="checkbox"/> Peer teaching <input type="checkbox"/> Scaffolding/Coaching <input checked="" type="checkbox"/> Demonstrating <input type="checkbox"/> Problem solving <input type="checkbox"/> Inquiry <input checked="" type="checkbox"/> Collaborating <input type="checkbox"/> Think-Pair-Share <input type="checkbox"/> Predict-Observe-Explain <input type="checkbox"/> Microteaching <input type="checkbox"/> Case Study/Scenario Analysis	<input checked="" type="checkbox"/> Simulations & Games <input checked="" type="checkbox"/> Video Presentations <input checked="" type="checkbox"/> Oral presentations/Reports <input type="checkbox"/> Concept Mapping <input type="checkbox"/> Brainstorming <input type="checkbox"/> Drama/Role Playing <input type="checkbox"/> Seminars <input checked="" type="checkbox"/> Field Trips <input type="checkbox"/> Guest Speakers <input checked="" type="checkbox"/> Hands-on Activities <input type="checkbox"/> Service Learning <input checked="" type="checkbox"/> Web Searching <input type="checkbox"/> Experiments <input type="checkbox"/> Other(s):
Assessment Methods (Formal & Informal)	<input checked="" type="checkbox"/> Test/Exam <input checked="" type="checkbox"/> Quiz/Homework <input checked="" type="checkbox"/> Oral Questioning <input type="checkbox"/> Performance Project <div style="margin-left: 20px;"> <input type="checkbox"/> Written <input type="checkbox"/> Oral </div>	<input type="checkbox"/> Observation <input type="checkbox"/> Self-evaluation <input type="checkbox"/> Peer-evaluation <input type="checkbox"/> Portfolio <input checked="" type="checkbox"/> Presentation (Oral, Poster) <input type="checkbox"/> Other(s):

Student Workload (Total 127 Hrs)	<input checked="" type="checkbox"/> Lectures42 hrs <input checked="" type="checkbox"/> Course Readings25 hrs <input type="checkbox"/> Workshop hrs <input type="checkbox"/> Online Discussionhrs <input type="checkbox"/> Debatehrs <input type="checkbox"/> Work Placementhrs <input type="checkbox"/> Field Trips/Visits hrs <input type="checkbox"/> Observationhrs <input type="checkbox"/> Laboratory Applicationshrs <input checked="" type="checkbox"/> Homeworks20 hrs <input checked="" type="checkbox"/> Hands-on Work5 hrs <input type="checkbox"/> Quizzeshrs <input checked="" type="checkbox"/> Midterm10 hrs <input checked="" type="checkbox"/> Final20 hrs	<input type="checkbox"/> Resource Review hrs <input type="checkbox"/> Research Review hrs <input type="checkbox"/> Report on a Topic hrs <input type="checkbox"/> Case Study Analysis hrs <input checked="" type="checkbox"/> Oral Presentation5 hrs <input type="checkbox"/> Poster Presentation hrs <input type="checkbox"/> Demonstration hrs <input type="checkbox"/> Web Designs hrs <input type="checkbox"/> Mock Designs hrs <input type="checkbox"/> Team Meetings hrs <input type="checkbox"/> Other hrs
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COURSE POLICIES	
I . Attendance	
Attendance to the course is necessary but not mandatory.	
II . Missed Work	
There will be no make ups for laboratory work. Make ups for midterm and final exams will be provided if the student can provide a legal document confirming a life threatening health issue at the time of the examination or with the consensus of the CMPE faculty.	
III . Late Assignment Submission Policy	
Late submissions will not be graded for homeworks.	
IV . Extra Credit	
Extra credits will not be offered.	
V . Assignment Rules	
All assignment works must be done individually. A student can submit only one work. In case of multiple submissions, only the latest submission will be considered. Students cannot submit work on other students' behalf.	
VI. Plagiarism	
All of the following are considered plagiarism: <ul style="list-style-type: none"> • turning in someone else's work as your own • copying words or ideas from someone else without giving credit • failing to put a quotation in quotation marks • giving incorrect information about the source of a quotation • changing words but copying the sentence structure of a source without giving credit • copying so many words or ideas from a source that it makes up the majority of your work, whether you give credit or not" (www.plagiarism.org) 	
Plagiarism is a very serious offense and will be penalized accordingly by the university disciplinary committee. The best way to avoid accidentally plagiarizing is to work on your own before you ask for the help of other resources.	

VII. Cheating
Cheating has a very broad description which can be summarized as “acting dishonestly”. Some of the things that can be considered as cheating are the following: <ul style="list-style-type: none"> • Copying answers on examinations, homework and laboratory works, • Using prohibited material on examinations, • Lying to gain any type of advantage in class • Providing false, modified or forged data in a report • Plagiarizing • Modifying graded material to be regraded. • Causing harm to colleagues by distributing false information about an examination, homework or laboratory
VIII. Class Participation
Participation in class is necessary but not mandatory. However, if you do not attend the laboratory and complete the requested tasks, you cannot /will not get the assigned points from the laboratory. Similarly some lectures require you to attend to the lectures to earn some points. By actively participating in class, you can improve your learning process and immediately confirm what you have earned and what you have not internalized. Do not forget that you are not expected to know all of the material being discussed in class. Actually, you are expected not to know it. Therefore, there is no point in being hesitant to join a conversation or ask a question.
IX. Class Readings
Class readings are necessary but not mandatory. The material covered in class by your instructor will only provide a fundamental understanding of the general context. If you are willing to effectively learn something, you must actively work on it yourself. Reading is one of the most successful ways of learning about a topic.

COURSE ASSIGNMENTS
A. Mid-term [25%]
There will be 1 midterm worth 25% of the overall grade.
B. Assignments [30%]
There will be 5 assignments worth 30% (6% for each) of the overall grade.
C. Oral Presentation [5%]
There will be 1 oral presentation close to end of the semester worth 5 % of the overall grade.
D.Quiz [10%]
There will be 4 quizzes worth 10 % of the overall grade.
E. Final [30%]
There will be a final examination worth 30% of the overall grade.
GRADING
A. The minimum score to enter the final examination is 30.

TENTATIVE COURSE OUTLINE			
		Topic	HW Handout
W1	28/09/2016	Intro	
	28/09/2016	Maths	
	29/09/2016	Maths	
W2	05/10/2016	Maths	1st
	05/10/2016	Raster images	
	06/10/2016	Raster images	
W3	12/10/2016	Ray tracing	
	12/10/2016	Ray tracing	
	13/10/2016	Transformation (Hands-on activity)	
W4	19/10/2016	Transformation	2nd
	19/10/2016	Viewing	
	20/10/2016	Viewing & Graphics Pipeline	
W5	26/10/2016	Graphics Pipeline + Quiz	
	26/10/2016	Surface Shading	
	27/10/2016	Surface Shading	
W6	02/11/2016	Texture Mapping	
	02/11/2016	Texture Mapping	
	03/11/2016	Graphics Tool Introduction	3rd
W7	09/11/2016	Shadows	
	09/11/2016	Shadows	
	10/11/2016	Recitation + Quiz	
W8	16/11/2016	MIDTERM	
	16/11/2016	MIDTERM	
	17/11/2016	Recitation (midterm)	
W9	23/11/2016	Animation (Deformations)	
	23/11/2016	Animation	
	24/11/2016	Graphics Hardware	4th
•	30/11/2016	Graphics Hardware	
	30/11/2016	Shaders	
	01/12/2016	Shaders	
W11	07/12/2016	Recitation + Quiz	
	07/12/2016	Light	
	08/12/2016	Radiosity	
W12	14/12/2016	Color	5th
	14/12/2016	Global Illumination	
	15/12/2016	Building Interactive Graphics Applications	
W13	21/12/2016	CG in Games	
	21/12/2016	CG in Games + Quiz	
	22/12/2016	GRAPHICS TOOL MODELING COMPETITION Modelling of a scene using, e.g: lighting, shading, texturing	
W14	28/12/2016	ORAL PRESENTATIONS	
	28/12/2016	ORAL PRESENTATIONS	
	29/12/2016	Summary	

Prepared by & Date	Asst. Prof. Dr. Gizem Akinci 20/09/2016	Revision Date	20/09/2016
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